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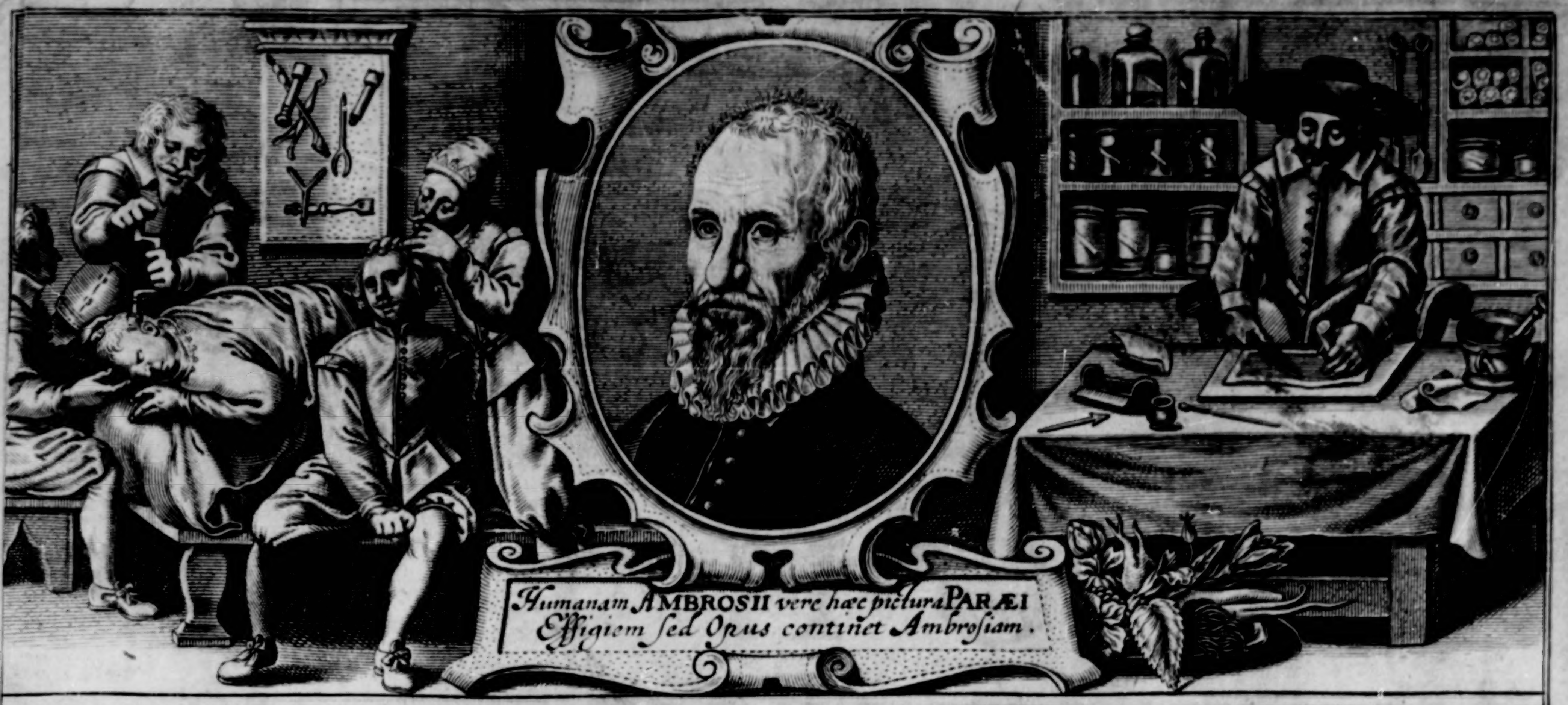
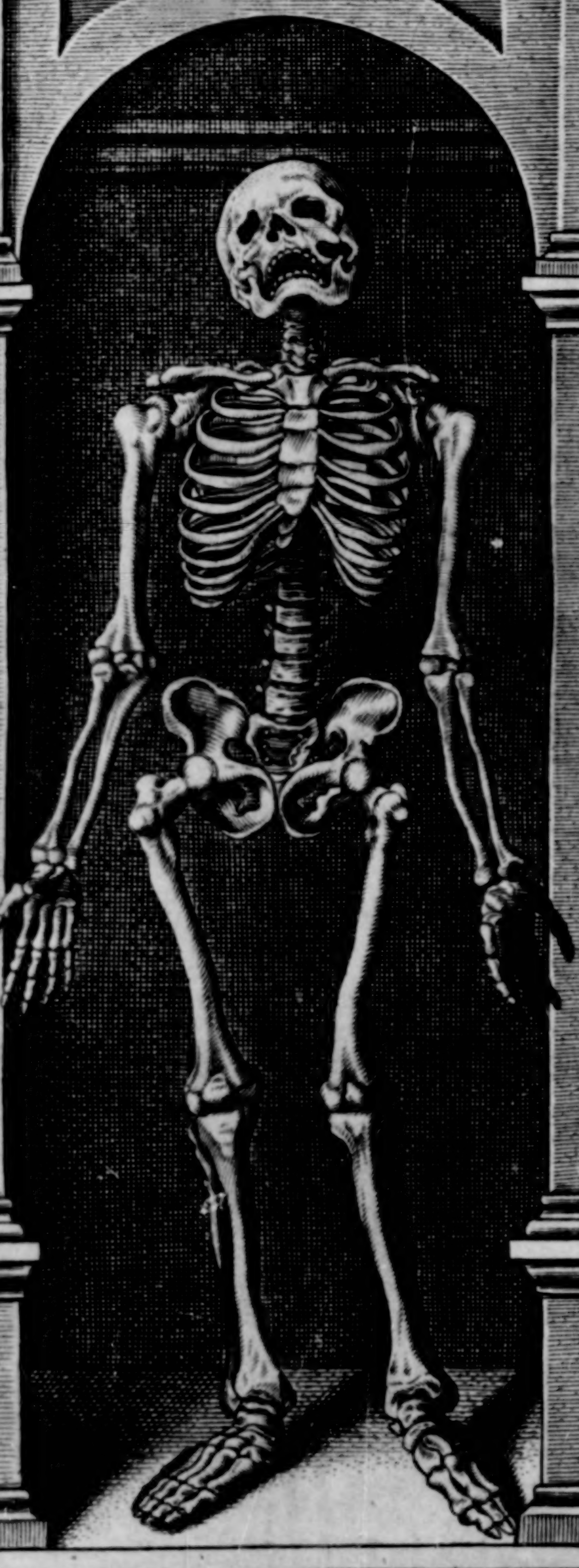

Humanam AMBROSII vere hæc pictura PARÆI
Effigiem sed Opus continet Ambrosiam.

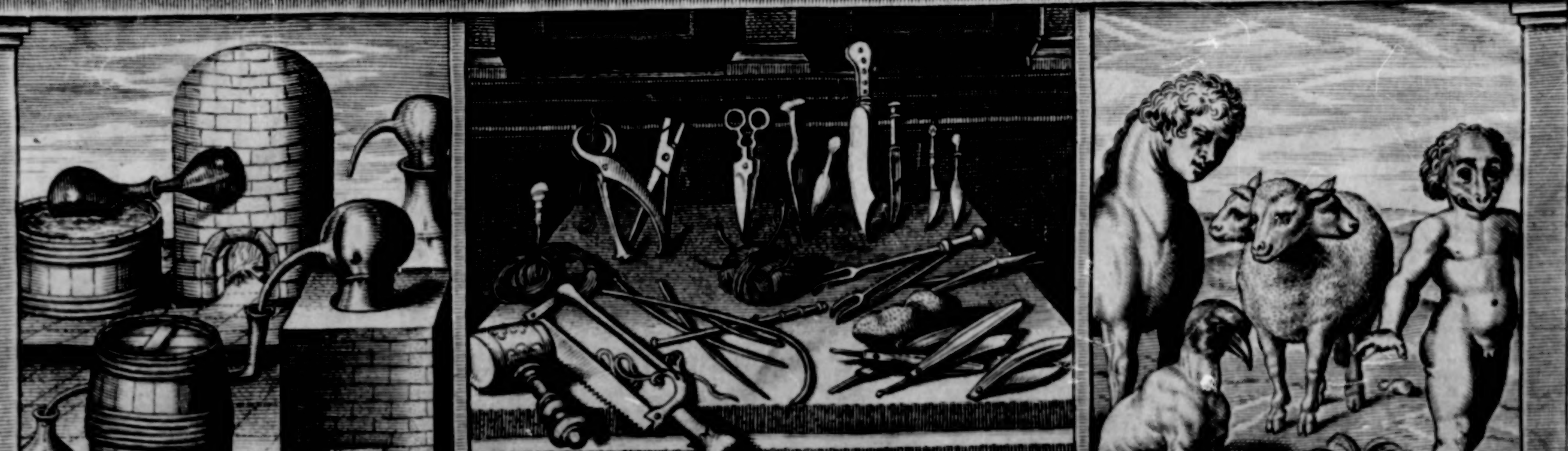


THE WORKES of that famous Chirurgion Ambroſe Parey

Tranſlated out of
Latine and compared
with the French.
by
Th: Iohnſon.

Ne fallare vide, neu quæ ſunt parta ſaluti,
Vertat in exitium, non ſolers cura medentis.

London
Printed by Th: Cotes
and R. Young
Anno 1634.


T. Cecill Sculp.

THE AVTHORS EPISTLE DEDICATORIE

To Henry the third, the moſt Chriſtian King of France and Poland

Even as (moſt Chriſtian King) we ſee the members of mans body by a friendly conſent are alwayes buſied, and ſtand ready to performe thoſe functions for which they are appointed by nature, for the preſervation of the whole, of which they are parts: ſo it is convenient that we, which are, as it were, Citizens of this earthly Common-weale ſhould be diligent in the following of that calling which (by Gods appointment) we have once taken upon us: and content with our preſent eſtate, not caried away with raſhnes and envy, deſire different and divers things whereof we have no knowledge. He which doth otherwiſe, perverts and defiles with hated confuſion the order and beauty, on which this Univers conſiſts. Wherfore when I conſidered with my ſelfe, that I was a member of this great Mundane body, and that not altogether unprofitable, I endeavored earneſtly, that all men ſhould be acquainted with my duty, and that it might be knowne how much I could profit euery man. For God is my witnes, and all good men know, that I have now laboured fifty yeares with all care and paines in the illuſtration and amplification of Chirurgery; and that I have ſo certainly touched the marke whereat I aimed, that Antiquity may ſeeme to have nothing wherein it may exceed us, beſide the glory of invention; nor poſterity any thing left but a certaine ſmall hope to adde ſome things, as it is eaſie to adde to former inventions. In performance whereof, I have beene ſo prodigall of my ſelfe, my watchings, faculties and meanes, that I ſpared neither time, labour, nor coſt, wherby I might ſatisfie and accompliſh my own deſires, this my great work, and the deſires of the ſtudious. Neither may we doubt but their ſtudies would at the length waxe cold, if they only furniſhed with the Theoricke and Precepts in Schooles and that with much laboure, ſhould ſee no manuall operation, nor manifeſt way of performing the Arte. For which cauſe I ſeeking the praiſe and profit of the French *Nation, even with the hinderance of my particular eſtate, have endeavored to illuſtrate and increaſe Chyrurgerie hitherto obſcure either by the infelicity of the* *former ages, or the envy of the Profeſſors; and not onely with precepts and rules, but being a lover of carved workes I beautified it with 300. formes, or graven figures and apt deliniations, in which whoſoever ſhall attentively looke ſhall finde five hundred anatomicall, or organicall figures belonging to the Arte, (if they be reckoned particularly). To every of theſe I have given their names and ſhewed their uſe, leaſt they ſhould ſeeme to have beene put in vainly for oſtentation or delight. But although there be few men of this profeſſion which can bring ſo much authority to their writings either with reaſon, or experience as I can; notwithſtanding I have not beene ſo arrogant, but intending to publiſh my worke, I firſt communicated it with men the moſt excellent in the Arte of Phiſicke, who gave me greater incouragement to perfect and publiſh it, that it might be in common uſe: profeſsing they wiſhed nothing more, than that it might be turned into Latine, ſo by which meanes it ſhould be knowne to forraigne Nations, that there is no kind of Learning which is not delivered with great dexterity of wit in this kingdome over which you rule. And thus much I dare boldly affirme, that there is ſcarce any, be he never ſo ſtately or ſupercilious, but that he may here find ſomething which may delight him, and by which he may better his knowledge. Therefore I doubted not to conſecrate this booke unto your Majeſtie both as a Patterne and treaſury of my labours aſwell in reſpect of my duty, who am yours by nature and education, as that I might manifeſt to all, your Highnes exceeding bounty towards me, in placing me, (having heretofore enjoyed the office of principall Chirurgeon under 3 Kings your Majeſties predeceſſors) in the ſame dignity, and that of your owne accord. And moreover I did conjecture that it would fall out, as now it doth, that this my worke caried through the world by the fame of your Majeſtie name, ſhould neither feare the face nor veiw of any, ſupported by the favour and Majeſtie of a moſt invincible Monarch and moſt excellent and renowned Prince. Neither did King* Charles *the ninth of happy memory, incited by the relation of the moſt gracious Queene his Mother, refuſe to reade it, being he underſtood it proceeded from him, who having happily paſſed all his time in private and publik employments, and converſed with all men of all ſorts, was judged moſt worthy to obtaine this favoure, as to have the front of this worke adorned and beautified with the ſplendor of his prefixed name. I encouraged by this hope, deſired that my requeſt ſhould paſſe as by a certaine continuation and ſucceſſion from a moſt powerfull, to a moſt Invincible King; and doe wholy conſecrate theſe my labours taken for my Countryes good unto your ſacred Majeſtie. God grant that your Majeſtie may have happy ſucceſſe of all your enterpriſes aboundantly added to* Neſtors *yeares.*

Paris. 8. Feb. Anno Dom. 1579.

Your moſt Chriſtian Majeſties
faithfull Servant

Ambroſe Parey.

The Preface.

Moſt men derive the Original of Phiſicke from heaven; for thoſe who hold the beſt opinion of the Creation of the world, affirme, the Elements being created and ſeparated each from other, man being not as yet made; incontinently by the divine decree, all herbes and plants with infinite variety of floures, endewed with various ſents, taſtes, colours and formes, grew and ſprung forth of the bowells of the Earth, enriched with ſo many and great vertues, that it may be thought a great offence to attribute to any other than the Deity, the benefit of ſo great a bleſſing ſo neceſſary for ſo many uſes: Neither could Mans Capacity ever have attained to the knowledge of thoſe things without the guidance of the divine power. For God the great Creator & faſhioner of the world, when firſt he inſpired *Adam* by the breath of his mouth into a living and breathing man, he taught him the nature, the proper operations, faculties and vertues of all things contained in the circuit of this Vniverſe. So that if there be any who would aſcribe the glory of this invention to man, he is condemned of ingratitude even by the judgment of *Pliny*. But this knowledge was not buryed in oblivion with *Adam*: but by the ſame guiſt of God was given to thoſe whom he had choſen and ordained for Phiſicke, to put their helping hands to others that ſtood in need thereof. Which opinion was not only received in the common manner and by the tacite conſent of al Nations, but confirmed by *Moſes* in the Scripture. *Geneſ.* 1. Which thing *Ieſus* the ſonne of *Sirach* the wiſeſt amongſt the Iewes, hath confirmed ſaying; *Ecclesiaſt.* 38. 1. *Honnor the Phyſition with the honnor due unto him, for the moſt High hath created him because of neceſſity: and of the Lord commeth the gift of healing. The Lord hath created Medicines of the Earth and he that is wiſe will not abhorre them. Give place and honnor to the Phiſition, for God hath created him, let him not goe from thee, for thou haſt need of him.* The *Græcians* who firſt ſeeme more fully and with greater fame to have profeſſed the Arte of Phiſicke, doe in a manner conſent with this opinion, in acknowledging *Apollo* to have beene the Inventor thereof, neither did they it without a reaſonable cauſe. For whether by *Apollo* they may underſtand the Sun who by its gentle and vitall heat doth bring forth, temper and cheriſh all things; or els ſome *Heros*, who incited by an excellent and almoſt divine vnderſtanding firſt taught and put in practiſe the Medicinall vertues of Herbs; in which ſenſe *Ovid* brings him in ſpeaking thus:

> *Herbs are of mine invention, and through all*
> *The world, they me the firſt Phiſitian call.*

The originall of Phiſicke ariſing from thoſe beginnings ſhall alwayes be celebrated, as celeſtiall, and was increaſed principally after this manner. After *Apollo*, *Æſculapius* his ſonne inſtructed by his father reduced this Arte being as yet rude and vulgar into a litle better and more exquiſite forme, for which cauſe he was reputed worthy to be accounted as one of the Gods. At the ſame time flouriſhed *Chiron* the *Centaure* who for that he excelled in knowledge of Plants, and taught *Æſculapius*, (as many report) their faculties, is thought by *Pliny* and ſome others to have bin the inventor of Phiſicke. Plin.l.7,c.2. *Æſculapius* had two ſons *Podalirius* and *Machaon* who following their fathers ſteps & profeſſing Phiſicke, did principally beautifie and practiſe that part thereof which is called Chirurgery, and for that cauſe were accounted the Inventers thereof. After thoſe *Aſclepiades* left this Arte much enlarged as hereditary to his poſterity: by whoſe ſtudy and diligence, that part of the Arte was invented and annexed, which by a more curious skill ſearcheth out and cureth thoſe diſeaſes which lye hid within the body. *Hippocrates* the *Coan* the ſon of *Heraclidas*, borne of the noble race of *Aſclepiades*, Prince of the Phiſitians that were before him, perfected Phiſicke and reduced it into an Arte and wrote divers bookes thereof in Greeke. *Galen* ſucceeded him ſix hundred yeares after, who was a man moſt famous not only for his knowledge in Phiſicke, but alſo in all other ſciences, who faithfully interpreting every thing that was obſcure and difficult in the writings of *Hippocrates*, enlarged the ſcience with many volumes. Thus therfore was the beginning, thus the encreaſe and perfecting the Arte of Phiſicke, as much as can be hoped for from mans induſtry. Although indeed we cannot deny but that Experience hath much profited this Arte, as it hath and doth many other. For as men perceived that ſome things were profitable, ſome unprofitable for this or that diſeaſe, they ſet it downe, and ſo by diligent obſervation and marking of ſingularities, they eſtabliſhed univerſall and certaine precepts and ſo brought it into an Arte. For ſo we find it recorded in ancient Hiſtories, before the invention of Phiſicke, that the *Babilonians* & *Aſſyrians* had a cuſtome amongſt them, to lay their ſicke and diſeaſed perſons in the porches and entries of their houſes, or to carry them into the ſtreets and market places, that ſuch as paſſed by and ſaw them, might give them counſell to take thoſe things to cure their diſeaſes, which they had formerly found profitable in themſelves or any other in the like affects, neither might any paſſe by a ſicke man in ſilence. Alſo *Strabo* writes that it was a cuſtome in *Græce* that thoſe which were ſicke ſhould reſort to *Æſculapius* his Temple in *Epidaurum*, that there as they ſlept, by their dreames they might be admoniſhed by the God what meanes they ſhould uſe to be cured; and when they were freed from their diſeaſes, they writ the manner of their infirmities and the means by which they were cured in tables & faſtned them to the pillars of the Temple, not only for the glory of the God, but alſo for the profit of ſuch, as ſhould afterwards be affected with the like maladies. All which tables (as fame reports) *Hippocrates* tranſcribed, & ſo frō thoſe drew the Arte of Phiſicke. Beaſts alſo have added much to this Arte. For one man was not only inſtructed by another, but learned alſo much from brute beaſts, for they by the onely inſtinct of nature have found out divers herbs, & remedies, by which they freed & preſerved themſelves from infirmities, which might preſently be transferred to mans uſe. Wherfore cōſidering that ſuch & ſo many have cōcurred to bring this Arte to perfection, who hereafter dare call in queſtion the excellency therof? cheifly if he reſpect the ſubject therof, Mans body, a thing more noble than all other Mundane thing, and for which the reſt were created. Which thing moved *Herophilus* in times paſt to call Phiſitions *The hands of the Gods*. For as we by putting forth our hand, do helpe any man out of the water or mud into which he is fallen: even ſo we doe ſuſtaine thoſe that are throwne downe from the top of health to the gates of death by violence of diſeaſes, with happy medicines, & as it were by ſome ſpeciall & divine gift deliver them out of the jawes of death. *Homer* the prince of Greek Poets affirmes that one Phiſition is far more worthy than many other men. All Antiquity gave Phiſitions ſuch honor, that they worſhipped them with great veneration as Gods, or the ſons of their Gods. For who is it which is not much delighted with the divine force of healthfull medicines, with which (we ſee by dayly experience) Phiſitiōs, as armed with *Mercuries* rod, do bring back thoſe languiſhing ſoules which are even entring the gates of death? Hence it cometh to paſſe that the divine Poets of ancient times, as *Orpheus*, and *Muſæus* & *Heſiode*; & the moſt renowned Philoſophers, *Pythagoras*, *Plato*, *Ariſtotle*, *Theophraſtus*, *Chryſippus*, *Cato Cenſorius*, & *Varro* eſteemed nothing more excellent than to excell in the knowledge of Medicines, & to teſtifie the ſame by written monuments to Poſterity. For what can be more noble or worthy of a generous diſpoſition than to attaine to that by the benefit of Phiſicke, that adorned with the ornaments of dignity thou maieſt have power over other men, & favoured of Princes, Kings & Emperours, mayeſt appoint & preſcribe to them thoſe things which are profitable to preſerve health, & cure their diſeaſes? But if you look for benefit by ſciences; then know that the Profeſſors hereof have beſides ſufficient gain, acquired much honor & many friends. *Hippocrates* comming to *Abdera* to cure *Democritus* of his madnes, not only the men of the City, but alſo the women, children & people of every age, ſexe & ranck went forth to meet him, giving him with a common conſent & loud voice the title of a *Tutelary* Deity and father of their Country. But the *Athenians*, for freeing their Country from the plague, with trium-

In what eſteeme Phiſitions have formerly beene.

phant pompe celebrated playes to his honor, & bountifully ſet upon his head as if he had beene a king, a Crowne of gold weighing a 1000. peices of their golden coine, & erected his ſtatue, for a perpetuall monument of his piety and Learning. *Eraſiſtratus* the Nephew of *Ariſtotle* by his daughter, received, freely given him by *Ptolomy* king of Egypt, for the cure of his ſon, 100. Talents of gold. The Emperour *Auguſtus* honoured *Antonius Muſa* with a golden ſtatue. *Quintus Stertinius* yearly received out of the Emperours Treaſury 12000.500. peices of gold. In the time of our Grandfathers *Petrus Aponenſis* called *Conciliator* was ſo famous through all *Italy* for his knowledge in Phiſicke, that he could ſcarſe be intreated to come to any man of faſhiō that was ſick, unles he gave him 50. crownes, for every day he was abſent from home: but when he went to cure *Honorius* the Biſhop of *Rome*, he received 400. crownes for every day he was abſent, Our French Chronicles relate in what credit & eſtimation *James Cotterius* the Phiſition was with *Lewis* the 11. King of *France*; for they report he gave him monethly out of his Treaſury 10000. crownes. Phiſick in times paſt hath bin in ſuch eſteem with many famous & noble perſonages, that divers Kings & Princes delighted with the ſtudy therof, & deſirous to attaine glory & credite therby, called ſundry herbs after their own names. For ſo *Gentian* took its name of *Gentius* king of *Jllyria*; the herb *Lyſimachia* of *Lyſimachus* the king of *Macedon*, the *Mithridatick* herb or *Scordium*, of *Mithridates* the king of *Pontus* & *Bithinia*; *Achillea* of *Achilles*; *Centorie* of *Chiron* the *Centaure*; *Arthemiſia* of *Arthemiſia* the Queen of *Caria*. *Attalus* king of *Pergamus*, *Salomon* of *Judea*, *Evax* of *Arabia*, and *Juba* the king of *Mauritania*, were not only inflamed with a deſire of the knowledge of plants; but either they have writtē books of it, or for the great cõmodity of poſterity, invented by their skil many choiſe Antidots compounded of divers ſimples; neither the deſire of learning this noble ſcience is yet altogether extinct. As may appear by that *indiā* plant *Tobaco*, called by ſome the noble herb, *Catherines* herb & *Medices* herb, but commonly the Queens herb, becauſe *Catherine Medices* the mother of our kings, by her ſingular ſtudy and induſtry made manifeſt the excellent vertue it hath in curing maligne ulcers & wounds, which before was unknown to the *French*. For theſe worthy men underſtood that their glory, thus faſtened & ingrafted into the deepe, & as it were everliving roots of plants, would never decay; but ſhold be propagated to al poſterity in many ſucceeding ages, growing up with their ſprouting & budding ſhouts, ſtalks, floures & fruits. Neither did theſe famous men whil'ſt they adorned this part of phiſick ſuffer the other, which treats of the diſſectiō of mans body, be buried in oblivion, & without their knowledge; as inſtructed with the precepts & learning of the wiſeſt men, how artificiall & unimitable by mortall hand this fabrick of our body is. Neither is it probable that *Apis*, *Oſiris* and *Ptolomy* kings of Egypt, *Solomon*, *Alexander* the great, *Mithridates*, *Attalus*, ſeeing they dedicated themſelves wholy to the cōtemplation of

Names given to Plants.

nature

natural things, neglected the uſe of Anatomie, & being men moſt deſirous to know themſelves, to have beene ignorant of the ſtructure of there own bodyes being the habitations of their ſoules immortall & made to the Image of God: ſeeing they obſerved with certaine judgment the different lights of the Sun, Moone and ſtars; and paſſed over ſo many lands, ſo many ſeas, ſo many regions ſo far remote one from another, by waies ſo terrible by reaſon of cold, uncouthnes, darknes, by rocks, by fire & ſword, with great labour, charge & danger of life, only that they might ſatisfie their minds thirſting after the knowledge of things; and to have left untouched a thing truly noble, admirable, and moſt worthy of knowledge, eaſie to be attained by any, and to be acquired without any danger of life, or fortunes.

Phiſicke is devided into 3 parts.

Seeing there be 3 parts of that Phiſicke which at this time we profeſſe, *Chirurgery* which by the uſe of the hand, *Diet* which with a convenient manner of feeding & ordering the body, & *Pharmacy* that by medicines attempt to expell diſeaſes, & preſerve health; The prime Phiſitions do not without reaſon contend which of theſe may be accounted the cheife. Certainly *Herophilus* had *Pharmacy* in ſuch eſteem, that he thought medicines were firſt mixed & admniſtred to the ſicke by *Apollo* (whom Antiquity thought a great Deity.) And *Pliny* had ſo good an opinion of Diet, that he exclaimes; The true remedies & Antidotes againſt diſeaſes are put into the pot & eaten every day by the poore people. Verily al learned men confeſſe that the manner of curing which is performed by diet, is much more facile & proſperous, than that which is done by medicines; as thoſe things which ſought with much labour and coſt, are taken with much loathing, and taken are ſcarſe retained, but retained they oft work with much labour & paine: Which things long ago moved *Aſclepiades* to exclude the uſe of medicines, as hurtfull to the ſtomack. Yet if we will beleeve *Celſus* neither of theſe parts merit the preheminēce, but both of them give place to Chirurgery. For ſeing that fortune is very powerfull in diſeaſes, & the ſame Meats & Medicines are often good & often vaine, truly it is hard to ſay, whether the health is recovered by the benefit of Diet and *Pharmacy*, or by the ſtrength of the body. Moreover in thoſe caſes, in which we moſt prevaile with medicines; although the profit be more manifeſt, yet it is evident that health is often ſought in vaine even by theſe things, & often recovered without them. As it may be perceived by ſome troubled with ſore eies, & others with Quartaine feavers, who having bin long troubled by Phiſitiōs are ſometimes healed without them. But the effect of Chirurgery as it is very neceſſary, ſo it is the moſt evident amongſt all the parts of phiſicke. For who without Chirgery can hope to cure broken, or luxated parts, who wounds & ulcers, who the falling of the Matrix, the ſtone in the bladder, a member infeſted with a Gangrene, or Sphacele? Beſides, this part alſo is the moſt ancient; for *Podalirius* & *Machaon* following their Generall *Agamemnon* to the Trojane wars, yeelded no

ſmall

ſmal comfort to their fellow Soldiers. Whom notwithſtanding *Homer* affirmes not to have given any helpe in the peſtilence, nor in divers other diſeaſes, but onely were accuſtomed to heale wounds by inſtruments and medicines. And if the difficulty of learning it argue the excellency of the Arte, who can doubt but Chirurgery muſt be the moſt excellent, ſeeing that none ought to be accounted a Chirurgeon or which can performe his duty, without the knowledge of Diet & *Pharmacy?* But both the other can performe their parts without Chirurgery if we may beleeve *Galen*. But if we conſider the matter more neerly according to truth; we ſhall underſtand thoſe three parts have a certaine common bond, and are very neere of kinred, ſo that the one implores the ayde of the other; neither can the Phiſition doe any thing praiſe worthy without the conſpiracy and joynt conſent of theſe three; therfore in ancient times there was but one performer and uſer of all the three parts. But the multitude of men dayly encreaſing, and on the contrary mans life decreaſing, ſo that it did not ſeeme able to ſuffiſe for to learne and exerciſe all the three, the workmen devided themſelves. Wherfore that which happens to any man either by lot, or counſell, that let him follow, maintaine and onely uſe, as mindful how ſhort his life is, and how long the Arte.

The excellency of Chirurgery.

A Catalogue of the VVorkes of AMBROSE PAREY, the King of France his Chiefe *Chyrurgion*, which were ſet forth in Latine, by *James Guillemeau*.

1. *AN Introduction, or compendious way to Chirurgery.*

2. *Of living creatures and mans excellency.*

3. *Of the Anatomy of mans body.*

4 *Of the vitall parts contained in the Cheſt.*

5. *Of the Animall parts placed in the head.*

6. *Of the Muſcles and Bones, and other extreme parts of the body.*

7. *Of Tumors contrary to nature in generall.*

8. *Of Tumors contrary to nature in particular.*

9. *Of wounds in generall.*

10. *Of the greene and bloudy wounds of each ſeverall part.*

11 *Of wounds made by Gun-ſhot, and other fiery Engins, and all ſorts of weapons.*

12. *Of Contuſions and Gangreenes.*

13. *Of Vlcers, Fiſtulae, and Hæmorroides.*

14. *Of Ligatures, or Bandages.*

15. *Of Fractures.*

16. *Of Luxations, and Straines.*

17. *Of diverſe affects of the parts not agreeable to nature, whoſe cure commonly is performed by the hand.*

18. *Of the Gout.*

19. *Of the* Lues Venerea, *and thoſe Symptomes that happen by reaſon thereof.*

20. *Of the ſmall Poxes and Meaſels and alſo of Wormes, and the Leproſie.*

21. *Of Poyſons, and of the biting of mad dogges, and the ſtinging and biting of venemous creatures.*

22. *Of the Plague.*

23. *Of the Arts to repaire thoſe things which are defective, either by nature or accident.*

24. *Of the generation of Man.*

25. *Of Monſters and Prodigies.*

26. *Of the Faculties of ſimple medicines, together with their compoſition and uſe.*

27. *Of Diſtillations.*

28. *A Treatiſe of reports, and the embalming of dead bodies.*

29. *An Apologie, and Voyages*; being not in the Latine, but tranſlated out of the laſt French Edition, whom alſo I have followed in the number of the Bookes, leaſt any ſhould thinke ſome wanting, finding but 26. in the Latine, and 29. in the French.

AN INTRODVCTION OR COMPENDIOVS VVay to Chyrurgerie.

CHAP. I.

What Chyrurgerie is.

CHYRVRGERIE is an Art, which teacheth the way by reaſon, how by the operation of the hand we may cure prevent and mitigate diſeaſes, which accidentally happen uuto us. Others have thought good to deſcribe it otherwiſe, as that; it is that part of Phyſicke which undertaketh the cure of diſeaſes by the ſole induſtry of the hand; as by cutting, burning, ſawing off, uniting fractures, reſtoring diſlocations, and performing other workes, of which we ſhall hereafter treate. Chyrurgery alſo is thus defined by the Author of the medicinall Definitions; The quicke motion of an intrepide hand joyned with experience: or an artificiall action by the hands uſed in Phyſicke, for ſome convenient intent. Yet none muſt thinke to attaine to any great perfection in this Art, without the helpe of the other two parts of Phyſicke; I ſay of Diet and Pharmacie, and the divers application of proper medicines, reſpecting the condition of the cauſes, diſeaſes, ſypmtomes, and the like circumſtances, which comprehended under the names of things naturall, not naturall, and beſides nature (as they commonly call them) wee intend to deſcribe in their proper place. But if any reply, that there be many which doe the workes of Chirurgery, without any knowledge of ſuch like things, who notwithſtanding have cured deſperate diſeaſes with happy ſucceſſe; let them take this for an anſwer, that ſuch things happen rather by chance, than by the induſtry of the Art, and that they are not provident that commit themſelves to ſuch. Becauſe that for ſome one happy chance, a thouſand dangerous errors happen afterwards, as *Galen* (in divers places of his Method) ſpeakes againſt the Emperickes. Wherefore ſeeing wee have ſet downe Chirurgery to be a diligent operation of the hands, ſtrengthened by the aſſiſtance of Diet and Pharmacie, wee will now ſhew, what, and of what nature the operations it are.

The definition of Chirurgerie.

What neceſſary for a Chirurgion.

CHAP. II.

Of Chirurgicall operations.

The nature of a Chirurgion.

Experience more neceſſary for a Chirurgion, than Art.

FIve things are proper to the dutie of a Chirurgian; To take away that which is ſuperfluous; to reſtore to their places, ſuch things as are diſplaced; to ſeparate thoſe things which are joyned together; to joyne thoſe which are ſeparated; and to ſupply the defects of nature. Thou ſhalt fare more eaſily and happily attaine to the knowledge of theſe things by long uſe and much exerciſe, than by much reading of Bookes, or daily hearing of Teachers. For ſpeech how perſpicuous and elegant ſoever it be, cannot ſo vively expreſſe any thing, as that which is ſubjected to the faithfull eyes and hands.

Examples of taking away that which is ſuperfluous.

Wee have examples of taking away that which abounds, in the amputation, or cutting off a finger, if any have ſixe on one hand, or any other monſtrous member that may grow out: in the lopping off a putrified part inwardly corrupted; in the extraction of a dead child, the ſecondine, mole or ſuch like bodies out of a womans wombe; in taking downe of all Tumors, as Wens, Warts, Polypus, Cancers, and fleſhy excreſcenſes of the like nature; in the pulling forth of bullets, of peeces of maile, of darts, arrowes, ſhells, ſplinters, and of all kind of weapons in what part of the body ſoever they be. And hee taketh away that which redounds, which plucks away the haires of the eye-lids which trouble the eye by their turning in towards it: who cuts away the web, poſſeſſing all the * *Adnata*, and part of the * *Cornea*: who letteth forth ſuppurated matter; who taketh out ſtones in what part ſoever of the body they grow; who puls out a rotten or otherwiſe hurtfull tooth, or cuts a naile that runs into the fleſh; who cuts away part of the *uvula*, or haires that grow on the eyelids; who taketh off a Cataract; who cuts the navill or fore-skinne of a child newly borne, or the skinnie caruncles of womens privities.

* Two tunicles of the eyes.

Examples of replacing.

Examples of placing thoſe things which are out of their naturall ſite, are manifeſt in reſtoring diſlocated bones; in replacing of the guts and kall fallen into the cods, or out of the navill or belly by a wound, or of the falling downe of the wombe, fundament, or great gut, or the eye hanging out of its circle, or proper place.

Example of ſeparating things joyned together.

But wee may take examples of diſioyning thoſe things which are continued from the fingers growing together, either by ſome chance, as burning, or by the imbecilitie of the forming facultie: by the diſiunction of the membrane called *Hymen*, or any other troubling the necke of the wombe, by the diſſection of the ligament of the tongue, which hinders children from ſucking and ſpeaking, and of that which hinders the *Glans* from being uncovered of the foreskinne; by the deviſion of a varicous veine, or of a halfe cut nerve or tendon, cauſing convulſion: by the diviſion of the membrane ſtopping the auditory paſſage, the noſe, mouth, or fundament, or the ſtubborne ſticking together of the haires of the eye-lids. Referre to this place all the workes done by Cauſticks, the Saw, Trepan, Lancet, Cuppingglaſſes, Inciſion Knife, Leaches, either for evacuation, derivation or revulſion ſake.

Examples of uniting things diſioyned.

The Chirurgion drawes together things ſeparated, which healeth wounds by ſtitching them, by bolſtering, binding, giving reſt to, and fit placing the part: which repaires fractures; reſtores luxated parts; who by binding the veſſell, ſtaieth the violent effuſion of bloud: who cicatriſeth cloven lips, commonly called hare-lips; who reduces to equalitie the cavities of Vlcers, and Fiſtula's.

Examples of ſuplying defects.

But hee repaires thoſe things which are defective, either from the infancy, or afterwards by accident, as much as Art and Nature will ſuffer, who ſets on an eare, an eye, a noſe, one or more teeth; who fils the hollowneſſe of the palat eaten by the Poxe, with a thinne plate of gold or ſilver, or ſuch like; who ſupplies the defect of the tongue in part cut off, by ſome new addition; who faſtens to a hand, an arme or legge with fit ligaments workemanlike: who fits a doublet bumbaſted, or made with iron plates to make the body ſtraight; who fills a ſhooe too big with corke, or faſtens a ſtocking or ſocke to a lame mans girdle to helpe his gate. We will treate more fully of all theſe in our following Worke. But in performing thoſe things with the hands, we cannot but cauſe paine: (for who can without paine cut off an arme, or legge, devide and teare aſunder the necke of the bladder, reſtore bones put out of their places, open ulcers, bind up wounds, and appply cauteries, and doe ſuch like?) notwithſtanding the matter often comes to that paſſe, that unleſſe wee uſe a judicious hand, wee muſt either die, or leade the remnant of our lives in perpetuall miſery. Who therefore can iuſtly abhorre a Chirurgion for this, or accuſe him of crueltie? or deſire they may be ſerved, as in ancient times the Romanes ſerved *Archagatus*, who at the firſt made him free of the Citie, but preſently after, becauſe he did ſomwhat too cruelly burne, cut and performe the other workes of a good Chirurgion, they drew him from his houſe into the Campus Martius and there ſtoned him to death, as wee have read it recorded by *Sextus Cheroneus Plutarche's* Neece by his daughter. Truly it was an inhumane kind of ingratitude, ſo cruelly to murder a man intent to the workes of ſo neceſſary an Art. But the Senate could not approve the act, wherefore to expiate the crime as well as then they could, they made his Statue in gold, placed it in *Æſculapius* his Temple, and dedicated it to his perpetuall memorie. For my part I very well like that ſaying of *Celſus*; A Chirurgeon muſt have a ſtrong, ſtable, and intrepide hand, and a minde reſolute and mercileſſe, ſo that to heale him he taketh in hand, he be not moved to make more haſte than the thing requires; or to cut leſſe than is needfull; but which doth all things as if he were nothing affected with their cries; not giving heed to the judgement of the vaine common people, who ſpeake ill of Chirurgions becauſe of their ignorance.

Archagatus the Chirurgion.

In præfat. lib. 7.

The properties of a good Chirurgion.

CHAP. III.

Of things Naturall.

WHat the Chirurgion may rightly and according to Art, performe the foreſaid workes, he muſt ſet before his eyes certaine Indications of working: Otherwiſe he is like to become an Empericke, whom no Art, no certaine reaſon, but onely a blind temerity of fortune moves to boldneſſe and action. Theſe Indications of actions are drawne from things (as they call them) naturall, not naturall, and beſides nature, and their adjuncts, as it is ſingularly delivered of the Ancients, being men of an excellent underſtanding. Wherefore we will proſecute according to that order, all the ſpeculation of this Art of ours. Firſt therefore things naturall are ſo termed, becauſe they conſtitute and containe the nature of mans body, which wholy depends of the mixture and temperament of the 4. firſt bodies, as it is ſhewed by *Hippocrates* in his Booke *de Natura humana*: wherefore the conſideration thereof belongs to that part of Phyſicke which is named *Phyſiologia*; as the examination of things not naturall to *Diatetice*, or Diet, becauſe by the uſe of ſuch things it indeavours to retaine and keepe health: but *Therapeutice* or the part which cures the diſeaſes, and all the affects beſides nature, challenges the contemplation of thoſe things which are not agreeable to nature. But the things which are called naturall may be reduced to ſeven heads: beſides which there comes into their fellowſhip, thoſe which wee terme annexed.

From whence we muſt draw Indications.

What things are called naturall.

To what part of Phiſicke things not natural pertaine. To what things beſides nature.

The ſeven principall heads of things naturall are,	Elements. Temperaments. Humors. Parts or members. Faculties. Actions. Spirits.	To theſe are annexed and ſomewhat neere,	Age. Sexe. Colour. Compoſure. Time or ſeaſon. Region. Vocation of life.

CHAP. IIII.

Of Elements.

What an Element is.

AN Element (by the definition which is commonly received amongſt Phyſitians) is the leaſt and moſt ſimple portion of that thing which it compoſeth: or that my ſpeech may be the more plaine: the foure firſt and ſimple bodies are called Elements; Fire, Aire, Water, and Earth; which accommodate and ſubject themſelves as matter to the promiſcuous generation of all things which the Heavens engirt, whether you underſtand things perfectly, or unperfectly mixed. Such Elements are onely to be conceived in your minde, being it is not granted to any externall ſenſe to handle them in their pure and abſolute nature. Which was the cauſe that *Hippocrates* expreſſed them not by the names of ſubſtances, but of proper qualities; ſaying, Hot, Cold, Moiſt, Drie; becauſe ſome one of theſe qualities is inherent in every Element, as his proper and eſſentiall forme, not onely according to the exceſſe of latitude, but alſo of the active facultie; to which is adjoyned another ſimple qualitie, and by that reaſon principall, but which notwithſtanding attaines not to the higheſt degree of his kinde, as you may underſtand by *Galen* in his firſt Booke of Elements. So, for example ſake, in the Aire wee obſerve two qualities, Heat, and Moiſture, both principall, and not remitted by the commixture of any contrary quality, for otherwiſe they were not ſimple. Therefore thou maiſt ſay, what hinders that the principall effects of heat ſhew not themſelves as well in the Aire, as in the Fire? becauſe as we ſaid before, although the Aire have as great a heat according to his nature, extent and degree, no otherwiſe than Fire hath, yet it is not ſo great in its active qualitie. The reaſon is, becauſe that the calfactorie force in the Aire is hindered, and dulled by ſocietie of his companion and adjoyned qualitie, that is, Humidity which abateth the force of heat, as on the contrary, drineſſe quickneth it. The Elements therefore are endewed with theſe qualities.

Elements are underſtood by reaſon, not by ſenſe.

Why he expreſſed the Elements by theſe names of qualities.

Two principall qualities are in each Element.

Why the Aire heats not ſo vehemently, as the Fire.

Names of the ſubſtances;		is		Names of the qualities.
	Fire		Hot and drie.	
	Aire		Moiſt and hot.	
	Water		Cold and moiſt.	
	Earth		Cold and drie.	

How the Elements may be underſtood to be mixed in compound bodies.

Theſe foure Elements in the compoſition of naturall bodies, retaine the qualities they formerly had, but that by their mixture and meeting together of contraries, they are ſomewhat tempered and abated. But the Elements are ſo mutually mixed one with another, and all with all, that no ſimple part may be found; no more than in a maſſe of the Emplaiſter *Diacalcitheos* you can ſhew any *Axungia*, oyle, or litharge by it ſelfe; all things are ſo confuſed and united by the power of heate, mixing the ſmalleſt particulars with the ſmalleſt, and the whole with the whole, in all parts. You may know and perceive this concretion of the foure Elementary ſubſtances in one compound body, by the power of mixture, in their diſſolution by burning a pile or heape of greene wood. For the flame expreſſes the Fire, the ſmoke the Aire, the moiſture that ſweats out at the ends, the Water, and the aſhes, the Earth: You may eaſily perceive by this example ſo familiar and obvious to the ſenſes what diſſolution is, which is ſucceeded by the decay of the compound body; on the contrary, you may know that the coagmentation, or uniting and ioyning into one of the firſt mixed bodies is ſuch, that there is no part ſinceere, or without mixture. For if the heat which is predominant in the fire, ſhould remaine in the mixture in its perfect vigor, it would conſume the reſt by its pernitious neighbourhood; the like may be ſaid of Coldneſſe, Moiſture, and Drineſſe; although of theſe qualities, two have the title of Active, that is, Heat, and Coldneſſe, becauſe they are the more powerfull; the other two Paſſive, becauſe they may ſeeme more dull and ſlow, being compared to the former. The temperaments of all ſublunarie bodies ariſe from the commixture of theſe ſubſtances & elementary qualities, which hath bin the principall cauſe that moved me to treate of the Elements. But I leave the force and effects of the Elementary

Why of the firſt qualities, two are accounted active, and two paſſive.

qualities to ſome higher contemplation, content to have noted this, that of theſe firſt qualities, (ſo called, becauſe they are primarily and naturally in the foure firſt bodies) others ariſe and proceed, which are therefore called the ſecond qualities: as of many theſe, Heauineſſe, Lightneſſe, variouſly diſtributed by the foure Elements, as the Heat, or Coldneſſe, Moiſtneſſe or Drineſſe, have more power over them. For of the Elements, two are called light, becauſe they naturally affect to move upwards: the other two heavy, by reaſon they are carried downeward by their owne weight. So we thinke the fire the lighteſt, becauſe it holds the higheſt place of this lower world; the Aire which is next to it in ſite, wee account light; for the water which lies next to the Aire, we judge heavy; and the earth the center of the reſt we judge to be the heavieſt of them all. Hereupon it is, that light bodies, and the light parts in bodies, have moſt of the lighter Elements; as on the contrary heavy bodies have more of the heavier. This is a briefe deſcription of the Elements of this fraile world, which are onely to be diſcerned by the underſtanding, to which I thinke good to adjoyne another deſcription of other Elements, as it were ariſing or flowing from the commixture of the firſt; for beſides theſe, there are ſaid to be Elements of generation and Elements of mans body. Which as they are more corporall, ſo alſo are they more manifeſt to the ſenſe. By which reaſon *Hippocrates* being moved, in his Booke *de Natura humana*, after he had deſcribed the nature of Hot, Cold, Moiſt and Drie, he comes to take notice of theſe by the order of compoſition. Wherefore the Elements of our generation, as alſo of all creatures which have bloud, are ſeed and menſtruous bloud. But the Elements of our bodies are the ſolid and ſimilar parts ariſing from thoſe Elements of generation. Of this kind are bones, membranes, ligaments, veines, arteries, and many others manifeſt to the eyes, which wee will deſcribe at large in our Treatiſe of Anatomie.

Why the firſt qualities are ſo called.

What the ſecond qualities are.

What Elements light, what heavy.

What the Elements of generation are.

What the Elements of mixt bodies.

CHAP. V.

Of Temperaments.

A Temperament is defined a proportionable mixture of hot, cold, moiſt and drie; or, it is a concord of the firſt diſagreeing faculties. That harmony ſprings from the mixture of the foure firſt bodies of the world. This whether Temperamēt or concord is given to Plants and brute beaſts for the beginning of their life, and ſo conſequently for their * life and forme. But as Plants are inferior in order and dignitie to beaſts, ſo their * life is more baſe and infirme, for they have onely a growing facultie by which they may draw an Alimentarie juyce from the Earth, as from their mothers breaſts, to preſerve them and their life, by which they may grow to a certaine bigneſſe; and laſtly, by which they may bring forth their like for the perpetuall continuance of their kind. But the * life of beaſts have to the three former the gift of ſence annexed; by benefit whereof, as by a certaine inward knowledge, they ſhun thoſe things that are hurtfull, and follow thoſe which profit them, and by the power of their will, they move themſelves whither they pleaſe. But the ſoule of man farre more perfect and noble than the reſt, ariſeth not from that earthly mixture and temper of the Elements, but acknowledgeth and hath a farre more divine ofſpring, as we ſhall teach hereafter.

What a Temperament is.

* *Anima.* What the life performes in Plants.

* *Anima.* What in beaſts.

Mans ſoule comes from above.

They devide a Temperament at the firſt diviſion into two kindes; as one a temperate, another an untemperate. The untemperate is of two ſorts; the one wholy vicious, which hath altogether exceeded the bounds of mediocritie: the other which hath ſomewhat ſtraied from the mediocritie of temper, but notwithſtanding is yet contained within the limits of health: as that which brings no ſuch evident harme to the actions, but that it ſomewhat hinders them, ſo that they cannot ſo well and perfectly performe their duties. But the vicious Temperament doth three manner of wayes corrupt the functions, either by weakning, depraving or aboliſhing them. For ſo ſtupor, or aſtoniſhment, diminiſheth and ſloweth the quickneſſe of motion; convulſion depraves it; the Palſie aboliſheth it, and taketh it away. The temperate Temperament

The manifold diviſion of a Temperament.

A Temperament, *ad Pondus.*

perament

* Ad pondus, vel ad juſtitiam.

A temperament ad juſtitiam.

The temperament of a bone.

perament is alſo devided into two kinds; which is either to equallity of weight, or Iuſtice. It is called a temperature to weight which ariſeth from the equall force of exactly concurring qualities, and as placed in a perfect ballance, drawes downe neither to this nor that part. They thinke the example of this Temperament to appeare in the inner skinne of the fingers ends of a man tempered to Iuſtice. For ſeeing the moſt exquiſite touch reſides there, they ought to be farre from all exceſſe of contrariety; for otherwiſe being corrupted by too much heat or cold, moiſture or drineſſe, they could give no certaine judgement of the tangible qualities. For which thing nature hath excellently provided in the fabricke and coagmentation of the parts of which the skinne conſiſts. For it is compoſed of hot and moiſt fleſh, and therefore ſoft, and of a tendon and nerve cold and drie, and therefore hard, which are not onely equally fitted and conjoyned, but wholy confuſed and mixed together, by which it comes that removed from all extremes of oppoſition, it is placed in the midſt, as a rule to judge of all the exceſſes that happen to the touch. So it was fit the eye, which was to be the inſtrument of ſight, ſhould be tinctured with no certaine colour, that it might be the leſſe deceived in the judgement of colours. So it was convenient the hearing ſhould not be troubled with any diſtinct ſound, whereby it might more certainly judge of equall and unequall ſounds, not diſtinguiſhed by a ratable proportion; neither was it fit the tongue ſhould have any certaine taſte, leſt the acceſſe of that taſte ſhould deceive it in knowing and judging of ſo many different taſtes. The Temperature tempered to juſtice is that, which although it is a little abſent from the exact and ſevere parility of mixed qualities, yet hath that equalitie which doth fully and aboundantly ſuffice for to performe all the functions fitly and perfectly which nature doth require, wherefore we can judge no otherwiſe of it than by the integritie of the Actions. For hence it tooke its name, for as diſtributive Iuſtice equally gives to every one rewards, or puniſhment according to their deſerts; ſo nature having regard to all the parts of the bodie, gives them all that temper which may ſuffice to performe thoſe duties, for which they are ordained. Let us for an example conſider a Bone; no man doubts but that, like as the other ſimilar parts of the body proceeds from the mixture of the foure Elements: but neverthele ſſe nature waighing the uſe of it, and ordaining it to ſupport the reſt of the body, would have more of the terrene and drie Element infuſed into it, that it might be the ſtronger and firmer to ſuſtaine weight. But a Ligament, ſeeing it was made for other uſes, hath leſſe of that earthly drieneſſe than the bone, but more than the fleſh, altogether fitted to its nature. So it hath ſeemed good to nature to endue all the parts of the body, not onely with an equall portion, but alſo proportion of Elements and qualities; wee call that a temperament to Iuſtice: and wee ſay that it is in Plants, Brute beaſts, and all naturall bodies, which enjoy that temper and mediocritie, which may be agreeable to their nature. Hereupon by compariſon ariſe eight kindes of intemperate tempers, as

The kindes of untemperate tempers.

- Foure ſimple
  - Hot
    Cold
    temperate in
    - Drineſſe and Moiſture.
  - Moiſt
    Drie
    temperate in
    - Heat and Cold.
- Foure compounds
  - Hot and moiſt.
  - Hot and drie.
  - Cold and moiſt.
  - Cold and drie.

But theſe temperaments are either of the whole body, or of ſome part thereof

- and that either
  - principall, as
    - the Braine.
    - the Heart.
    - the Liver.
    - the Stones.
  - or of the reſt of the parts compoſed of other which have no principality in the body.

Againe, ſuch temperaments are either healthfull, which ſuffice perfectly to performe their actions; or unhealthfull, which manifeſtly hurt them, the ſignes whereof may be read deſcribed by *Galen*. And you muſt obſerve that when we ſay the body, or any part of it is hot, wee underſtand more hot than is fit for one of that kinde which is tempered to juſtice; as when we ſay a man hath a hot liver, wee meane his liver is hotter, than a man juſtly tempered ſhould have; for all other tempers, whether of the whole body, or any of the parts thereof, are to be referred to this; and in the cure of diſeaſes we muſt looke upon it, as the marke, and labour to preſerve it by the uſe of convenient things, as much as lies in our power. Wherefore becauſe it is very neceſſary to know the diſtinction of temperaments, I have thought good in this place, briefly to handle the temperaments of the parts of the body, ages, ſeaſons of the yeare, humors, and medicines. Therefore the temperaments of the parts of our body are of this nature, not onely by the judgement of the touch of a mans hand which is juſtly tempered (who is often deceived by flowing heate, which ſpread from the heart into all the body, imparts a certaine kinde of heate to all the parts,) but alſo by the rule of their reaſon, compoſure and ſubſtance, as

Lib.2.de Temper. & in Arte medica.

What the temperaments of mans body are.

A Bone is the moſt drie and cold.
A Griſtle leſſe than it.
A Ligament leſſe than a Griſtle.

A Tendon is ſo much drier and colder than the membrane, by how much it in the ſame temper exceedes a Veine and Arterie. Then follow the harder veines, for the ſofter are in a middle temper of drineſſe and moiſture, like as the skinne; although all both ſoft and hard, are of a cold temper. Wherefore all theſe parts of their owne nature are cold and without bloud: although the veines and arteries waxe hot, by reaſon of the heate of the bloud they containe, which notwithſtanding alſo borroweth that heat from the heart, as a part moſt hot, and ſofter than the skinne; the liver next followeth the heart, in the order of the hotter parts, which is far ſofter than the skinne it ſelfe: for if, according to *Galens* opinion, the heart is ſomewhat leſſe hard than the skinne, and that is farre harder than the liver, as appeares by touching them, it muſt neceſſarily follow that the liver much exceedes the skinne in ſoftneſſe; I underſtand the skinne ſimple, and ſeparated from the fleſh lying under it, to which it firmely cleaves. The fleſh is more moiſt and hot than the skinne, by reaſon of the bloud diſperſed in it. The ſpinall marrow is colder and moiſter than the skinne; but the braine ſo much exceeds it in moiſture, as it is exceeded by the fat. The lungs are not ſo moiſt as the fat, and the ſpleene, and kidnies, are of the like nature, and nevertheleſſe they are all moiſter than the skinne.

Ad finem lib. de temper.

According to the diverſities of ages, the temperaments both of the whole body, and all its parts, undergoe great mutations; for the bones are farre harder in old men than in children, becauſe our life is, as it were a certaine progreſſe to drineſſe, which when it comes to the height conſequently cauſeth death. Wherefore in this place we muſt ſpeake of the Temperaments of ages, when firſt we ſhall have defined what an age is. Therefore an age is defined, a ſpace of life in which the conſtitution of the bodie of its ſelfe and owne accord, undergoeth manifeſt changes; the whole courſe of life hath foure ſuch ages. The firſt is childhood, which extends from the birth to the eighteenth yeare of age, and hath a hot and moiſt temper, becauſe it is next to the hot and moiſt beginnings of life, ſeed and bloud: Youth followeth this which is prolonged from the eighteenth, to the twentie fift yeare, and is temperate, and in the midſt of all exceſſes; Mans eſtate ſucceedeth youth, which they deny to extend beyond the thirtie fift yeare of age, in its proper temper it is hot and drie: whereby it commeth to paſſe that then the heate is felt more acride and biting, which in childhood ſeemed milde; becauſe the progreſſe of the life to drineſſe hath much waſted the native humiditie.

The temperaments of ages.

What an age is.

Then ſuccedes old age ever devided into two parts; the firſt whereof extends from the thirtie fift, to the fortie ninth yeare; thoſe of this age are called old men (* *but we commonly call them middle aged men.*) The latter is as it were devided by *Galen* into three degrees; the firſt whereof are thoſe, who having their ſtrength ſound and firme undergoe civill affaires and buſineſſes: which things thoſe which are in the ſecond degree

Old age devided into two parts.

* Three degrees of the ſecond part of old age.

gree of old age cannot doe, becauſe of the debilitie of their now decaying ſtrength: but thoſe which are in the laſt degree are afflicted with moſt extreme weakeneſſe and miſerie, and are as much deprived of their ſences and underſtanding, as of the ſtrength of their bodies; whereof aroſe this Proverbe, *Old men twice children*. Thoſe old men of the firſt ranke are pleaſant, and courteous, and thoſe we ſay are beginning to grow old, or in their greene old-age; thoſe of the ſecond ſort delight in nothing but the boord and bed; but old decreepit men of the laſt order, thinke of nothing elſe, than their graves and monuments. Their firme and ſolid parts are of a cold and drie temperature, by reaſon of the decay of the radicall moiſture, which the inbred heate cauſeth in the continuance of ſo many years. Which thing may happen in a ſhort ſpace, by the vehement flame of the ſame natural heate, turned by feavours into a fiery heate. But if any to prove old men moiſt, will object, that they cough up, and ſpit much, I will anſwer him, as an old Doctor once ſaid; That a pitcher filled with water may powre forth much moiſture; yet no man will deny but that ſuch a veſſell of its owne terrene nature and matter is moſt drie; ſo old men may plainely be affirmed to be moiſt, by reaſon of their defect of heate, and aboundance of excrements. But this deſcription of ages, is not to be taken ſo ſtrictly, as alwayes to be meaſured by the ſpaces and diſtances of yeares, for there are many which by their owne miſdemeanour, ſeeme elder at fortie, than others doe as [illegible]tie.

Old men have their ſolid parts drie.

A compariſon of the foure ages to the foure ſeaſons of the yeare.

Laſtly, the famous Philoſopher *Pythagoras*, devided man life into foure ages, and by a certaine proportion compared the whole courſe thereof to the foure ſeaſons of the yeare; as childhood to the Spring, in which all things grow and ſprout out, by reaſon of plenty and aboundance of moiſture. And youth to the Summer, becauſe of the vigour and ſtrength which men enjoy at that age. And mans eſtate, or conſtant age to Autumne, for that then after all the dangers of the forepaſſed life, the gifts of diſcretion and wit acquire a ſeaſonableneſſe, or ripeneſſe, like as the fruits of the earth enjoy at that ſeaſon. And laſtly, he compares old age to the ſterile and fruitleſſe Winter, which can eaſe and conſolate its tediouſneſſe by no other meanes, than the uſe of fruits gathered and ſtored up before, which then are of a cold and troubleſome condition. But for extreme old age, which extends to eightie, or a hundred yeares, it is ſo cold and drie, that thoſe which arrive at that decrepit age are troubleſome, harſh, touchy, froward, crabby, and often complaining, untill at the length deprived of all their ſenſes, tongue, feet, and underſtanding, they doting, returne againe to childiſhneſſe, as from the ſtaffe to the ſtart. And thus much of the Temperaments of ages.

The tempers of the ſeaſons of the yeare.

But now in like manner we will explaine the temperatures of the ſeaſons of the yeare, which are foure, the Spring, Summer, Autumne, Winter. The Spring continues almoſt from the twelth or thirteenth day of March, to the midſt of May, *Hippocrates* ſeemeth to make it hot and moiſt; which opinion ſeemeth not to have ſprung from the thing it ſelfe, but from an inveterate error of the ancient Philoſophers, who would fit the temperaments of the foure ſeaſons of the yeare, as anſwering in proportion to the temperatures of the foure ages.

How the Spring is temperate.

For if the matter come to a juſt triall, all men will ſay the Spring is temperate, as that which is in the midſt of the exceſſe of heate, cold, moiſture and drineſſe; not onely by compariſon becauſe it is hotter than Summer, and colder than Winter; but becauſe it hath that qualitie of its owne proper nature. Wherefore it is ſaid of *Hippocrates*: The Spring is moſt holeſome and leaſt deadly; if ſo be that it keepe its native temper, from which if it decline, or ſucceed a former untemperate ſeaſon, as Autumne, or Winter, it will give occaſion to many diſeaſes deſcribed by *Hippocrates*; not that it breeds them, but becauſe it brings them to ſight, which before lay hid in the body. Summer is comprehended in the ſpace of almoſt foure moneths; it is of a hot and drie temper, a breeder of ſuch diſeaſes as proceed from choler, becauſe that humor at this time is heaped up in many bodies by aduſtion of bloud bred in the Spring; but all ſuch diſeaſes doe ſpeedily runne their courſe. The beginning of Autumne, is from the time the Sunne enters into Libra, and endures the like ſpace of time as the Spring. But when it is dry, it hath great inequalitie of heate and cold; for the mornings and evening being very cold, the noondayes on the contrary are exceeding

Aphor.9.ſect.3

Aphor.20.ſect.3

Autumne unequall.

ding hot. Wherefore many diſeaſes are in Autumne, and then long and deadly eſpecially if they incline towards winter: becauſe all dayly and ſodaine changes to heat and cold are dangerous. The winter poſſeſſes the remnant of the yeare, and is cold and moiſt, it encreaſes naturall heat, ſtirs up the appetite, and augments Phlegme. It encreaſes heat by *Antiperiſtaſis*, or contrariety of the encompaſſing aire, which being then cold prohibites the breathing out of heate: whereby it happens that the heat being driven in and hindered from diſſipation, is ſtrengthened by couniting its forces. But it augments Phlegme, for that men are more greedy, the Appetite being encreaſed by the ſtrengthened heat: from whence proceeds much crudity and a large ſtore of diſeaſes, eſpecially Chronicke or Long which ſpread and encreaſe rather in this winter ſeaſon than in any other part of the yeare. To this diſcourſe of the temper, of the ſeaſons of the yeares, is to be revoked the variety of tempers which happens very day, which certainly is not to be neglected, that there may be place of election, eſpecially if nothing urge. For hither belongs that ſaying of *Hippocrates*; When in the ſame day it is one while hot, another cold, Autumnall diſeaſes are to be expected. Therefore an Indication taken from hence is of great conſequence to the judgement of diſeaſes; for if it agree with the diſeaſe, the diſeaſe is made more contumacious, and difficult to cure. Whereupon the Patient and Phiſition will have much trouble; but if on the contrary it reclame and diſſent, the health of the Patient is ſooner to be expected. Neither is it a thing of leſſe conſequence to know the cuſtomes and habits of the places and Countries in which we live, as alſo the inclination of the Heavens and temperature of the Aire; but let vs leave theſe things to be conſidered by Naturall Philoſophers, that we may deliver our judgment of the temperaments of *Humors*. blood, as that which anſwers to the Aire in proportion, is of a hot and moiſt nature, or rather temperate, as *Galen* teſtifies; for, ſaith he, it is certaine and ſure that the The blood is neither hot, nor moiſt, but temperate as in its firſt compoſure none of the 4 firſt qualities exceeds other by any manifeſt exceſſe, as he repeats it upon the 39. ſentence. Phlegme, as that which is of a wateriſh nature, is cold and moiſt; no otherwiſe than Choler being of a fiery temper, is hot and dry. But Melancholy aſſimulated to Earth, is cold and dry. This which we have ſpoken in generall of Phlegme and Melancholy, is not alwayes true in every kind of the ſaid humors. For ſalte Phlegme is of a hot and dry temperature, as alſo all kinds of Melancholy which have aroſe, or ſprung by aduſtion from the native and Alimentary, as we will teach in the following Chapter. Now the Temperaments of Medicins have not the ſame forme of judgment, as thoſe things which we have before ſpoken of; as, not from the Elementary quality which conquering in the contention and mixture, obtaines the dominion; but plainly from the effects which taken or applyed they imprint in a temperate body. For ſo we pronounce thoſe things hot, cold, moiſt, or dry, which produce the effects of Heate, Coldnes, Moiſture or Drynes. But we will defer the larger explication of theſe things to that place, where we have peculiarly appointed to treat of Medicines; where we will not ſimply enquire whether they be hot or cold, but what degree of heate and cold, or the like other quallity: in which ſame place we will touch the temperature and all the Nature of taſts, becauſe the certaineſt judgment of medicines is drawne from their taſts. Hitherto of Temperaments, now we muſt ſpeake of Humors whoſe uſe in Phyſicall ſpeculation is no leſſe than that of Temperaments.

How Winter increaſes the native heat.

Aphor. 4 ſect. 3

The temperaments of Humors.

Lib. de natura humana ad ſent. 36. Sect. 1

The temperature of the blood.

From whence we judge of the temperature of medicines.

CHAP. VI.

Of Humors.

TO know the nature of *Humors* is a thing not onely neceſſary for Phiſitions, but alſo for Chirurgeons, becauſe there is no diſeaſe with matter which ariſeth not from ſome one, or the mixture of more *Humors*. Which thing *Hippocrates* underſtanding, writ, every Creature to be either ſicke or well according to the Condition

The knowledge of the Humors is neceſſary.

Lib. de natura Hum.

dition of the *Humors* in the body. And certainly all putride feavers proceed from the putrifaction of *Humors*. Neither doe any acknowledge any other originall or diſtinction of the differences of Abſceſſes or Tumors: neither do ulcerated, brokē or otherwiſe wounded members hope for the reſtauration of continuity, from other than from the ſweet falling downe of humors to the wounded part. Which is the cauſe that often in the cure of theſe affects, the Phiſitions are neceſſarily buſied in tempering the Blood, that is, bringing to a mediocrity the 4 humors compoſing the maſſe of blood, if they at any time offend in quantity, or quality. For whether if any thing abound, or digreſſe from the wonted temper in any exceſſe of heat, cold, viſcoſity, groſſenes, thinnes, or any ſuch like quality, none of the accuſtomed functions will be well performed. For which cauſe thoſe cheife helpes to preſerve and reſtore health have beene divinely invented; *Phelebotomy*, or bloodletting which amends the quantity of too much blood; and purging which corrects and drawes away the vicious quality. But now let us begin to ſpeak of the Humors, taking our beginning from the definition.

The helpes of Health.

What an humor is.

The manifold diviſion of Humors.

The materiall and efficient cauſes of blood

What the *Chylus* is.

* *Vena porta*

Where the blood is perfected.

The receptacles of Choler and Melancholy.

Foure unlike Humors in the Bloody.

A compariſon of blood and new wine.

An Humor (is called by Phiſitions) what thing ſo ever is Liquide and flowing in the body of living Creatures endued with Blood, & that is either natural, or againſt nature. The naturall is ſo called becauſe it is fit to defend, preſerve and ſuſtaine the life of a Creature. Quite different is the nature & reaſon of that which is againſt nature. Again the former is either Alimentary, or Excrementitious; The Alimentary which is fit to nouriſh the body, is that Humor which is contained in the veines and arteries of a man which is tēperate & perfectly wel; & which is underſtood by the general name of blood which is let out at the opening of a veine. For blood otherwiſe taken is an Humor of a certaine kind, diſtinguiſhed by heate and warmneſſe from the other Humors comprehended together with it, in the whole maſſe of the blood. Which thing that it may the better be underſtood, I have thought good in this place to declare the generation of Blood by the efficient and materiall cauſes. All things which we eate or drink, are the materialls of blood, which things drawne into the bottome of the ventricle by its attractive force, and there detained, are turned by the force of concoction implanted in it, into a ſubſtance like to Almond Butter. Which thing although it appeare one and like it ſelfe, yet it conſiſts of parts of a different nature, which not only the variety of meats, but one & the ſame meate yeelds of it ſelf. We terme this *Chylus* (when it is perfectly concocted in the ſtomacke). But the * Gate-veine receives it driven from thence into the ſmall guts, and ſucked in by the Meſeraicke veins, and now having gotten a litle rudiment of Change in the way, carries it to the Liver, where by the blood-making faculty which is proper and naturall to this part, it acquires the abſolute and perfect forme of blood. But with that blood at one and the ſame time and action all the humors are made whether Alimentary or excrementitious. Therefore the blood that it may performe its office, that is, the faculty of nutrition, muſt neceſſarily be purged and clenſed from the two excrementitious humors. Of which the bladder of Gall drawes one which we call Yellow Choler, and the Spleen the other which we terme Melancholy. Theſe two humors are naturall, but not Alimentary, or nouriſhing, but of another uſe in the body, as afterwards we will ſhew more at large. The blood freed from theſe 2. kinds of excrements is ſent by the veines and Arteries into all parts of the body for their nouriſhment. Which although then it ſeeme to be of one ſimple nature, yet notwithſtanding it is truly ſuch, that foure different and vnlike ſubſtances may be obſerved in it, as blood properly ſo named, Phlegme, Choler and Melancholy, not only diſtinct in colour, but alſo in taſte, effects and qualities. For as *Galen* notes in his booke *De Natura humana*, Melancholy is acide or ſoure, choler bitter, Blood ſweet, Phlegme unſavory. But you may know the variety of their effects, both by the different temper of the nouriſhed parts, as alſo by the various condition of the diſeaſes ſpringing from thence. For therefore ſuch ſubſtances ought to be tempered and mixed amongſt themſelves in a certaine proportion, which remaining, health remaines, but violated, diſeaſes follow. For all acknowledge that an *Oëdema* is cauſed by Phlegmatick, a *Scirrhus* by Melancholike, an *Eryſipelas* by Cholericke, and a *Phlegmone* by pure and laudable blood. *Galen* teaches by a familiar example of new wine preſently taken from the preſſe, that theſe 4 ſubſtances are contained in that one Maſſe, and mixture of the blood. In which every one obſerves 4. diſtinct Eſſences; for the flower of the wine working up ſwims at the top, the dregs fall downe to the bottome, but the crude and watery moiſture mixed together with the ſweet and vinous liquor, is every where diffuſed through the body of the wine; the flower of the wine repreſents Choler, which bubling up on the ſuperficies of blood, as it concretes and growes cold, ſhineth with a golden colour; the dregs Melancholy, which by reaſon of its heavines ever ſinketh downward, as it were the Mudd of the blood; the crude and watery portion Phlegme: for as that crude humor, except it be rebellious in quantity, or ſtubborne by its quality, there is hope it may be changed into wine, by the naturall heate of the wine; ſo Phlegme which is blood halfe concocted, may by the force of native heat be changed into good and laudable blood. Which is the cauſe that nature decreed, or ordained no peculiar place, as to the other 2. humours, whereby it might be ſevered from the blood; But the true and perfect liquor of the wine repreſents the pure blood, which is the more laudable and perfect portion of both the humors of the confuſed Maſſe. It may eaſily appeare by the following ſcheme, of what kind they all are, and alſo what the diſtinction of theſe foure humors may be.

Phlegme is blood halfe concocted. Why it hath no proper receptacle.

	NATVRE	CONSISTANCE	COLOVR	TASTE	VSE.
Blood is	*Of Nature aery, hot and moyſt, or rather temperate,*	*Of indifferent conſiſtance, neither too thicke nor too thin,*	*Of Colour red, roſy or Crimſon,*	*Of Taſte ſweete,*	*Of ſuch uſe, that it cheifly ſerves for the nouriſhment of the fleſhy parts, and caried by the veſſels imparts heate to the whole body.*
Phlegme is	*Of Nature watery, cold and moiſt,*	*Of Conſiſtance liquid,*	*Of Colour white*	*Of Taſte ſweet, or rather unſavory, for we commend that water which is unſavory*	*Fit to nouriſh the braine and al the other cold and moiſt parts, to temper the heate of the blood, and by its ſlipperines to helpe the motion of the ioynts.*
Choler is	*Of Nature fiery, hot and drie,*	*Of Conſiſtance Thin,*	*Of Colour yeallow, or pale,*	*Of Taſte bitter,*	*It provoketh the expulſive faculty of the guts, attenuates the Phlegme cleaving to them, but the Almentary is fit to nourith the parts of like temper with it.*
Melancholy is.	*Of Nature earthly, cold and dry.*	*Of Conſiſtance groſſe and muddy,*	*Of Colour blackiſh*	*Of taſte acide, ſoure or biting.*	*Stirs up the Appetite, nouriſhes the ſpleene and all the parts of like temper to it, as the Bones.*

Bloud hath its neereſt matter from the better portion of the *Chylus*: and being begunne to be laboured in the veines, at length gets forme and perfection in the liver; but it hath its remote matter from meates of good digeſtion and quality, ſeaſonably eaten after moderate exerciſe; but for that, one age is better than another, and one time of the yeare more convenient than another. For bloud is made more copiouſly in the Spring, becauſe that ſeaſon of the yeare comes neereſt to the temper of the bloud, by reaſon of which the bloud is rather to be thought temperate, than hot and moiſt, for that *Galen* makes the Spring temperate, and beſides, at that time bloud-letting is performed with the beſt ſucceſſe: youth is an age very fit for the generation of bloud; or by *Galens* opinion, rather that part of life, that continues from the 25. to the 35. yeare of our age. Thoſe in whom this humor hath the dominion, are beautified with a freſh and roſie colour, gentle and well natured, pleaſant, merry, and facetious. The generation of Phlegme is not by the imbecillity of heat, as ſome of the ancients thought; who were perſwaded that choler was cauſed by a raging, bloud by a moderate, and phlegme and melancholy, by a remiſſe heate. But that opinion is full of maniſeſt errour: for if it be true that the *Chylus* is laboured and made into bloud in the ſame part, and by the ſame fire, that is, the liver; from whence in the ſame moment of time ſhould proceed that ſtrong and weake heate, ſeeinge the whole maſſe of the bloud different in its foure eſſentiall parts, is perfected and made at the ſame time, and by the ſame equall temper of the ſame part, action, and bloud-making facultie; therefore from whence have we this varietie of humors? From hence, for that thoſe meates by which wee are nouriſhed, enjoy the like condition that our bodies doe, from the foure Elements, and the foure firſt qualities; for it is certaine, and wee may often obſerve in what kind ſoever they be united or joyned together, they retaine a certain hot portion imitating the Fire, another cold, the water; another dry, the earth, and laſtly, another moiſt like to the Aire. Neither can you name any kinde of nouriſhment, how cold ſoever it be, not Lettuce it ſelfe, in which there is not ſome fiery force of heate. Therefore it is no marvell, if one and the ſame heate working upon the ſame matter of *Chylus*, varying with ſo great diſſimilitude of ſubſtances, doe by its power produce ſo unlike humors, as from the hot, Choler; from the cold, Phlegme; and of the others, ſuch as their affinity of temper will permit.

Lib.1.de temp.

One and the ſame heate is the efficient cauſe of all humors at the ſame time.

The heate of the Sunne alone doth melt waxe and harden clay.

There is no cauſe that any one ſhould thinke that varietie of humors to be cauſed in us, rather by the diverſity of the active heate, than waxe and a flint placed at the ſame time, and in the ſame ſituation of climate and ſoile, this to melt by the heat of the Sunne, and that ſcarſe to waxe warme. Therefore that diverſitie of effects is not to be attributed to the force of the efficient cauſe, that is, of heate, which is one and of one kinde in all of us; but rather to the materiall cauſe, ſeeing it is compoſed of the conflux, or meeting together of various ſubſtances, gives the heate leave to worke, as it were out of its ſtore, which may make and produce from the hotter part thereof Choler, and of the colder, and more rebellious Phlegme. Yet I will not deny but that more Phlegme, or Choler may be bred in one and the ſame body, according to the quicker, or ſlower provocation of the heate; yet neverthleſſe it is not conſequent, that the originall of Choler ſhould be from a more acride, and of Phlegme from a more dull heat in the ſame man. Every one of us naturally have a ſimple heate, and of one kinde, which is the worker of diverſe operations, not of it ſelfe, ſeeing it is alwayes the ſame, and like it ſelfe, but by the different fitneſſe, pliableneſſe, or reſiſtance of the matter on which it workes. Wherefore phlegme is generated in the ſame moment of time, in the fire of the ſame part, by the efficiency of the ſame heate, with the reſt of the bloud, of the more cold, liquide, crude, and watery portion of the *Chylus*. Wher by it comes to paſſe, that it ſhewes an expreſſe figure of a certaine rude or unperfect bloud, for which occaſion nature hath made it no peculiar receptacle, but would have it to run friendly with the bloud in the ſame paſſages of the veines, that any neceſſitie happening by famin, or indigency, and in defect of better nouriſhment, it may by a perfecter elaboration quickly aſſume the forme of bloud. Cold & rude nouriſhmēt make this humor to abound, principally in winter, and in thoſe which incline to old age, by reaſon of the ſimilitude which phlegme hath with that ſeaſon and age. It makes a man drowſie, dull, fat, and ſwollen up, and haſteneth gray haires. Choler

The divers condition of the matter alone, is the cauſe of varietie.

The effects of Phlegme.

is as it were a certaine heate and fury of humors, which generated in the liver, together with the bloud is carried by the veines and arteries through the whole body. That of it which abounds, is ſent, partly into the guts, and partly into the bladder of the gall; or is conſumed by tranſpiration, or ſweates; It is ſomewhat probable that the Arteriall bloud is made more thinne, hot, quicke and pallid, than the bloud of the veines, by the commixture of this Alementarie choler. This humor is chiefely bred and expeld in youth, and acrid and bitter meates give matter to it: but great labours of bodie and minde give the occaſion. It maketh a man nimble, quicke, ready for all performance, leane, and quicke to anger, and alſo to concoct meates. The Melancholicke humor, or Melancholy, being the groſſer portion of the bloud, is partly ſent from the Liver to the Spleene to nouriſh it, and partly carried by the veſſels into the reſt of the body, and ſpent in the nouriſhment of the parts endued with an earthly drineſſe; it is made of meates of groſſe juyce, and by the perturbations of the minde, turned to feare and ſadneſſe. It is augmented in Autumne, and in the firſt and crude old age; it makes men ſad, harſh, conſtant, froward, envious and fearefull. All men ought to thinke, that ſuch humors are wont to move at ſet houres of the day, as by a certaine peculiar motion or tide. Therefore the bloud flowes from the ninth houre of the night, to the third houre of the day; then Choler to the ninth of the day; then Melancholy to the third of the night, the reſt of the night that remaines, is under the dominion of Phlegme. Manifeſt examples hereof appeares in the French-Poxe. From the elaborate and abſolute maſſe of the bloud (as we ſaid before) two kindes of humors, as excrements of the ſecond concoction, are commonly and naturally ſeparated, the one more groſſe, the other more thinne. This is called either abſolutely choler, or with an adjunct, yellow choler. That is called Melancholy; which drawne by the Spleene in a thinner portion, and elaborate by the heate of the Arteries, which in that part are both many and large, becomes nouriſhment to the part; the remnant thereof is carried by the veiny veſſell into the orifice of the ventricle, whereby it may not cauſe, but whet the appetite, and by its aſtriction ſtrengthen the actions thereof. But yellow Choler drawne into the bladder of the gall, remaines there ſo long, till being troubleſome, either in quantitie or qualitie, it is excluded into the guts, whereby it may caſt forth the excrements reſiding in them; the expulſive facultie being provoked by its acrimony, and by its bitterneſſe kills the wormes that are bred there. This ſame humor is accuſtomed to die the urine of a yellow colour. There is another ſerous humor, which truly is not fit to nouriſh, but profitable for many other things, which is not an excrement of the ſecond, but of the firſt concoction. Therefore nature would that mixed with the *Chylus*, it ſhould come to the Liver, and not be voided with the excrements, whereby it might alay the groſſeneſſe of the bloud, and ſerve it for a vehicle; for otherwiſe the bloud could ſcarſe paſſe through the capillary veines of the Liver, and paſſing the ſimous and gibbous parts thereof, come to the hollow veine. Part of this ſerous humor ſeparated together with the bloud which ſerves for the nouriſhment of the Reines, and ſtraight carried into the bladder, is turned into that urine which we daily make; the other part therefore carried through all the body together with the bloud, performing the like duty of tranſportation, is excluded by ſweats into which it degenerates. Beſides the forenamed, the Arabians have mentioned foure other humors, which they terme Alimentary and ſecondary, as being the next matter of nouriſhment, as thoſe foure the bloud containes, the remote. They have given no name to the firſt kinde, but imagine it to be that humor, which hangs ready to fall like to little drops in the utmoſt orifices of the veines. They call the ſecond kinde, * Dew; being that humor, which entred already into the ſubſtance of the part, doth moiſten it. The third they call by a Barbarous name *Cambium*, which already put to the part to be nouriſhed, is there faſtened. The fourth named *Gluten*, or Glew, is onely the proper and ſubſtance-making humidity of the ſimular parts, not their ſubſtance. The diſtinction of the degrees of nutrition recited by *Galen* in his Bookes of Naturall faculties, anſwer in proportion to this diſtinction of humors. The firſt is, that the bloud flow to the part that requires nouriſhment; then that being there arrived, it may be agglutinated; then laſtly, that having loſt its former forme of nouriſhment, it may be aſſimulated.

The effects of Choler.

The effects of Melancholy.

What motions are in each quarter of the body.

The Melancholy humor doth not cauſe, but whet the appetite.

A Serous or wheyiſh humor.

Secundary humors.

* Ros.

Humors againſt nature.

Thoſe humors are againſt nature, which being corrupted, infect the body and the parts in which they are contained by the contagion of their corruption, retaining the names and titles of the humors, from whoſe perfection and nature they have revolted, they all grow hot by putrifaction, although they were formerly by their owne nature cold. And they are corrupted, either in the veines onely, or within and without the veines; In the veines Bloud and Melancholy; but both without and within the veines, Choler and Phlegme. When bloud is corrupted in its thinner portion, it turnes into choler, when in its thicker, into Melancholy; for the bloud becomes faultie two maner of waies, either by the corruption of its proper ſubſtance by putrifactiō, or by admixtion of another ſubſtance by infection. The Melancholy humor which is corrupted in the veines, is of three ſorts: the 1. is of a Melancholy juice putrifying, and by the force of a ſtrange heate, turned as it were into aſhes, by which it becomes aduſt, acride and biting. The other ariſeth from that Choler which reſembles the yolkes of egges, which by aduſtion becomes leeke-coloured, then æruginous, or of a blewiſh greene, then red, and laſtly blacke, which is the very worſt kinde of Melancholy, hot, maligne, eating and exulcerating, and which is never ſeene or voided with ſafetie. The third comes from Phlegme putrifying in the veines, which firſt degenerates into ſalte Phlegme, but ſtraight by the ſtrength of extraneous heate degenerates into Melancholy.

Into what humors the bloud when it corrupts doth degenerate.

The Melancholy humor corrupted, is of three kinds.

- Phlegme not naturall is bred, either
  - In the veines, and is either
    - Acide and very crude, as which hath had none or very litle impreſſion of heate, but that which it firſt had in the ſtomacke.
    - Salt, which is bred by the ſweet, putrifying and aduſt, or mixture of aduſt and ſalt particles.
  - or without the veines, and is of 4. ſorts, either
    - Wateriſh, as is that thinne moiſture which diſtils from the braine by the noſtrills.
    - Mucous, as when that wateriſh is thickened into filth by the helpe of ſome accidentall or ſmall heate.
    - Glaſſie, or * ***Albuminous***, reſembling molten glaſſe, or rather the white of an egge, and is moſt cold.
    - *Gypſea*, or Plaiſter-like, which is concrete into the hardneſſe and forme of chalke, as you may ſee in the joints of the fingers in a knotty goute, or in inveterate diſtillations upon the Lungs.

* *Albuminea.*

* *Vitellina.*

- Choler not naturall is bred, either
  - In the veines, as the * vitelline (like in conſiſtance to the yolke of a raw egge) which the acrimony of ſtrange heate breeds of yellow choler, which ſame in diſeaſes altogether deadly, degenerates into greene, æruginous, and laſtly into a blue, or colourlike that which is dried by woad.
  - Or in the capacitie of the upper belly as the ventricle, and this is of five kinds
    - The firſt is called *Porracea* or leek-coloured, reſembling the juyce of a leeke in greeneneſſe.
    - The 2. *ægruginoſa*, or æruginous, like in colour to verdigreaſſe.
    - The 3. blewiſh, or woad-coloured, like the colour died by woad.
    - The 4. red, differing in this from bloud, whoſe colour it imitates, that it never cōmeth into knots, or clods like bloud.
    - The 5. very red, generated by the exceſſe of the former, which cauſeth burning feavers.

The kinds of ſuch choler, are often caſt forth by vomit in diſeaſes, the ſtrength of the diſeaſe being paſt; being troubleſome to the parts through which they are evacuated, by their bitterneſſe, acrimony and biting.

The Signes of a Sanguine Perſon.

I Thinke it manifeſt, becauſe the matter and generation of fleſh is principally from bloud, that a man of a fleſhy, denſe, and ſolid habite of body, and full of a ſweete and vaporous juice, is of a Sanguine complexion. And the ſame party hath a flouriſhing and roaſie colour in his face, tempered as with an equall mixture of white and red; of white, by reaſon of the ſkinne lying utmoſt; of red, becauſe of the bloud ſpred underneath the ſkinne; for alwayes ſuch as the humor is, ſuch is the colour in the face. In manners hee is courteous, gentle, eaſie to be ſpoken to, not altogether eſtranged from the love of women, of a lovely countenance and ſmoothe forehead, ſeldome angry, but taking all things in good part; for as the inclination of humors is, ſo alſo is the diſpoſition of manners. But bloud is thought the mildeſt of all humors; but the ſtrong heate of the inward parts maketh him to eate and drinke freely. Their dreames are pleaſant, they are troubled with diſeaſes ariſing from bloud, as frequent Phlegmons, and many Sanguine puſtles breaking through the ſkinne, much bleeding, and menſtruous fluxes. Wherefore they can well endure bloud-letting, and delight in the moderate uſe of cold and drie things; and laſtly, are offended by hot and moiſt things. They have a great and ſtrong Pulſe, and much urine in quantitie, but milde of qualitie, of an indifferent colour and ſubſtance.

Such as the humor is, ſuch is the colour.

The manners and diſeaſes of Sanguine perſons.

The Signes of a Cholericke Perſon.

Cholericke men are of a pale or yellowiſh colour, of a leane, ſlender and rough habit of body, with faire veines and large Arteries, and a ſtrong and quicke Pulſe: their ſkinne being touched, feeles hot, dry, hard, rough and harſh, with a pricking and acred exhalation which breathes forth of their whole body. They caſt forth much choler by ſtoole, vomite and urine. They are of a quicke and nimble wit, ſtout, hardy and ſharpe vindicaters of received injuries, liberall even to prodigalitie, and ſomewhat too deſirous of glory. Their ſleepe is light, and from which they are quickly waked; their dreames are fiery, burning, quicke and full of furie; they are delighted with meates and drinkes which are ſomewhat more cold and moiſt, and are ſubject to Tertian and burning feavers, the Phrenſie, Iaundiſe, Inflammations, and other cholericke puſtules, the Laske, Bloudy fluxe, and bitterneſſe of the mouth.

Cholericks are not commonly fat.

The manners and diſeaſes of Cholericke perſons.

The Signes of a Phlegmaticke Perſon.

Thoſe in whom Phlegme hath the dominion, are of a whitiſh coloured face, and ſometimes livide and ſwollen, with their body fat, ſoft and cold to touch.

They are moleſted with Phlegmaticke diſeaſes, as *oedematous* tumors, the Dropſie, Quotidians feavers, falling away of the haires, and catarrhes falling downe upon the Lungs, and the *Aſpera Arteria*, or Weaſon; they are of a ſlow capacitie, dull, ſlothfull, drouſie, they doe dreame of raines, ſnowes, floods, ſwimming, and ſuch like, that they often imagine themſelves overwhelmed with waters; they vomite up much waterie, and Phlegmaticke matter, or otherwiſe ſpit and evacuate it, and have a ſoft and moiſt tongue.

The manners and diſeaſes of Phlegmaticke perſons.

And they are troubled with a dogge-like hunger, if it at any time ſhould happen that their inſipide Phlegme become acide; and they are ſlow of digeſtion, by reaſon of which they have great ſtore of cold and Phlegmaticke humors, which if they be carried downe into the windings of the cholicke-gut, they cauſe murmuring and noiſe, and ſometimes the Cholicke.

From whence noiſe, or rumbling in the belly proceedes.

For much wind is eaſily cauſed of ſuch like Phlegmatick excrements wrought upon by a ſmall and weake heate, ſuch as Phlegmaticke perſons have, which by its naturall lightneſſe is diverſly carried through the turnings of the guts, and diſtends and ſwells them up, and whiles it ſtrives for paſſage out, it cauſeth murmurings and noiſes in the belly, like winde breaking through narrow paſſages.

Signes of a Melancholike perſon.

Diſeaſes familiar to Melancholy perſons.

THe face of Melancholy perſons is ſwart, their countenance cloudy and often cruell, their aſpect is ſad and froward; frequent Schirrhous, or hard ſwellings, tumors of the ſpleene, Hæmorroids, *Varices (or ſwollen veines) Quartaine* feavers, whether continuall or intermitting, *Quintaine, Sextaine*, and *Septimane* feavours; and to conclude, all ſuch wandering feavers or agues ſet upon them. But when it happens the Melancholy humor is ſharpened, either by aduſtion, or commixture of Choler, then Tetters, the blacke Morphew, the Cancer ſimple and ulcerated, the Leprous and filthy ſcabbe, ſending forth certaine ſcaly and branlike excreſcenſes, (being vulgarly called Saint *Manis* his evill) and the Leproſie it ſelfe invades them: They have ſmall veines and arteries, becauſe coldneſſe hath dominion over them, whoſe propertie is to ſtraiten, as the qualitie of heate is to dilate.

From or by what their veines are ſwollen.

But if at any time their veines ſeeme bigge, that largeneſſe is not by reaſon of the laudable bloud, contained in them, but from much windineſſe; by occaſion whereof it is ſomewhat difficult to let them bloud; not onely becauſe that when the veine is opened, the bloud flowes ſlowly forth, by reaſon of the cold ſlowneſſe of the humors; but much the rather, for that the veine doth not receive the impreſſion of the Lancet, ſliding this way and that way, by reaſon of the windineſſe contained in it, and becauſe that the harſh drineſſe of the upper skinne, reſiſts the edge of the inſtrument. Their bodies ſeeme cold and hard to the touch,

Their dreames

and they are troubled with terrible dreames, for they are obſerved to ſeeme to ſee in the night Devils, Serpents, darke dens and caves, ſepulchers, dead corpſes, and many other ſuch things full of horror, by reaſon of a blacke vapour, deverſly moving and diſturbing the Braine, which alſo wee ſee happens to thoſe, *who feare the water, by reaſon of the biting of a mad dogge.

**Hydrophobi.*

Their manners.

You ſhall finde them froward, fraudulent, parſimonious, and covetous, even to baſeneſſe, ſlow ſpeakers, fearefull, ſad, complainers, carefull, ingenious, lovers of ſolitarineſſe, man-haters, obſtinate maintainers of opinions once conceived, ſlow to anger, but angered not be pacified. But when Melancholy hath exceeded natures and its owne bounds, then by reaſon of putrefaction and inflammation all things appeare full of extreme fury and madneſſe, ſo that they often caſt themſelves headlong downe from ſome high place, or are otherwiſe guilty of their owne death, with feare of which notwithſtanding they are terrified.

From whence the change of the native temper.

But we muſt note that changes of the native temperament, doe often happen in the courſe of a mans life, ſo that hee which a while agone was Sanguine, may now bee Cholericke, Melancholick, or Phlegmatick; not truly by the changing of the bloud into ſuch humors, but by the mutation of Diet, and the courſe or vocation of life.

How one may become cholericke.

For none of a Sanguine complexion but will prove Cholericke if he eate hot and drie meates, (as all like things are cheriſhed and preſerved by the uſe of their like, and contraries are deſtroyed by their contraries) and weary his body by violent exerciſes, and continuall labours; and if there be a ſuppreſſion of Cholericke excrements, which before did freely flow, either by nature, or art.

How melancholick.

But whoſoever feeds upon meates generating groſſe bloud, as Beefe, Veniſon, Hare, old Cheeſe, and all ſalt meates, he without all doubt ſliding from his nature, will fall into a Melancholy temper; eſpecially if to that manner of diet, he ſhall have a vocation full of cares, turmoiles, miſeries, ſtrong and much ſtudy, carefull thoughts and feares; and alſo if he ſit much, wanting exerciſe, for ſo the inward heate as it were defrauded of its nouriſhment, faints, and growes dull, whereupon groſſe and droſſie humors abound in the body. To this alſo the cold and drie condition of the place, in which we live, doth conduce, and the ſuppreſſion of the Malancholy humor accuſtomed to be evacuated by the Hæmorrhoides, courſes, and ſtooles.

How Phlegmaticke.

But he acquires a Phlegmaticke temper whoſoever uſeth cold & moiſt nouriſhment, much feeding, who before the former meate is gone out of the belly, ſhall ſtuffe his paunch with more, who preſently after meate runs into violent exerciſes, who inhabite cold and moiſt places, who leade their life at eaſe in all idleneſſe; and laſtly, who ſuffer a ſuppreſſion of the Phlegmaticke humour accuſtomely evacuated by vomite, cough, or blowing the noſe, or any other way either by nature or arte. Certainely it is very convenient to know theſe things, that we may diſcerne if any at the preſent be Phlegmaticke, Melancholicke or of any other temper, whether he be ſuch by nature, or neceſſity. Having declared thoſe things which concerne the nature of Temperaments, and deferred the deſcription of the parts of the body to our Anatomy, we will begin to ſpeake of the faculties governing this our life, when firſt we ſhall have ſhowen by a practicall demonſtration of examples, the uſe and certainty of the aforeſaid rules of Temperaments.

CHAP. VII.

Of the Practice of the aforeſaid rules of Temperaments.

Foure bounds or Regions of the world.

THat we may draw the Theoricke of the Temperaments into practiſe, it hath ſeemed good for avoyding of confuſion, which might make this our Introduction ſeeme obſcure, if we would proſecute the differences of the Tempers of all men of all Nations, to take thoſe Limits, which nature hath placed in the world; as South, North, Eaſt and Weſt, and as it were the Center of thoſe bounds, that the deſcribed variety of Tempers, in colour, habit, manners, ſtudyes, actions, and forme of life of men that inhabit thoſe Regions ſcituated ſo farre diſtant one from another, may be as a ſure rule, by which we may certainely judge of every mans temperature in particuler, as he ſhall appeare to be nearer, or further off from this, or that region. Thoſe which inhabite the South as the Affricans, Æthiopians, Arabians and Egyptians, are for the moſt part deformed, leane, dusky coloured and pale, with blacke eyes and great lippes, curled haire, and a ſmall and ſhrill voyce. Thoſe which inhabite the Northren parts as the Scythians, Muſcovites, Polonians and Germaines, have their faces of colour white, mixed with a convenient quantity of blood, their skin ſoft and delicate, their haire long, hanging downe and ſpreading abroad, and of a yellowiſh, or reddiſh colour; of ſtature they are commonly tall, & of a well proportioned, fat and compact habite of body, their eyes gray; their voyce ſtrong, loud and bigge. But thoſe who are ſcituated betweene theſe two former, as the Italians and French, have their faces ſomewhat ſwart, are well favoured, nimble, ſtrong, hairy, ſlender, well in fleſh, with their eyes reſembling the colour of Goates-eyes, and often hollow eyed, having a cleere ſhrill and pleaſing voyce.

The forces of temperatures in particulars, The temperature of the Southerene people. Of the Northerne.

The Southern people prevails in wit, the Northerne in ſtrenght.

The Southerne people are exceeded ſo much by the Northerne in ſtrength and abillity of body, as they ſurpaſſe them in witt and the faculties of the minde. Hence is it you may reade in Hiſtories, that the Scythians, Gothes and Vandals vexed Affricke and Spaine with infinite incurſions, and moſt large and famous Empires have beene founded from the North to the South; but few or none from the South to the North. Therefore the Northren people thinking all right and law to conſiſt in Armes, did by Duell onely determine all cauſes and controverſies ariſing amongſt the inhabitants, as wee may gather by the ancient lawes, and cuſtomes of the Lumbards, Engliſh, Burgonians, Danes and Germaines; and we may ſee in *Saxo* the Grammarian that ſuch a law was once made by *Fronto* king of Denmarke. The which cuſtome at this day is every where in force amongſt the Muskovits. But the Southerne people have alwayes much abhorred that faſhion, and have thought it more agreeable to Beaſts than Men. Wherefore we never heard of any ſuch thing uſed by the Aſſyrians, Egyptians, Perſians or Iewes. But moved by the goodnes of their wit, they erected Kingdomes and Empires by the onely helpe of Learning and hidden ſciences. For ſeeing by nature they are Melancholicke by reaſon of the dryneſſe of their temperature, they willingly addict themſelves to

ſolitarineſſe

The Southern people learned and religious.

ſolitarineſſe and contemplation, being endued with a ſingular ſharpneſſe of wit. Wherefore the Æthiopians, Egyptians, Africans, Iewes, Phænicians, Perſians, Aſſyrians, and Indians, have invented many curious ſciences, revealed the Myſteries and ſecrets of Nature, digeſted the Mathematiques into order, obſerved the motions of the heavens, and firſt brought in the worſhip and religious ſacrifices of the gods: Even ſo farre that the Arabians who live onely by ſtealth, and have onely a Waggon for their houſe, do boaſt that they have many things diligently and accurately obſerved in Aſtrology by their Anceſtors, which every day made more accurate and copious, they, as by an hereditary right, commend to poſterity, as it is recorded by *Leo* the Africane.

The Northern famous Warriours, and Artificers.

But the Northerne people, as the Germaines, by reaſon of the aboundance of humours and blood, by which the minde is as it were oppreſt, apply themſelves to workes obvious to the ſenſes, and which may be done by the hand. For their minds oppreſt with the earthly maſſe of their bodies, are eaſily drawne from heaven and the contemplation of Celeſtiall things, to theſe inferior things, as to find out Mines by digging, to buy and caſt mettals, to draw and hammer out workes of Iron, ſteele and braſſe. In which things they have proved ſo excellent, that the glory of the Invention of Guns and Printing belongs to them.

The endowments of ſuch as inhabite betweene them.

The people who inhabite the middle regions betweene theſe, are neither naturally fit for the more abſtruſe ſciences, as the Southerne people are, nor for Mechanicke workes, as the Northerne, but intermeddle with civil affaires, commerce and Merchandizing. But are endued with ſuch ſtrength of body as may ſuffiſe to avoid and delude the crafts and arts of the Southerne Inhabitants; and with ſuch wiſdome as may be ſufficient to reſtraine the fury and violence of the Northern. How true this is, any one may underſtand by the example of the *Carthaginians* and *Africans*, who when they had held *Italy* for ſome yeares by their ſubtile counſels, crafty ſleights and devices; yet could not eſcape but at the length their Arts being deluded, and they ſpoiled of all their fortunes, were brought in ſubjection to the Romans.

The Northren know how to overcome, but not how to uſe the victory

The *Gothes*, *Hunnes* and other Northerne people have ſpoiled & overrun the Romane Empire by many incurſions and inroades, but deſtitute of counſell & providence, they could not keepe thoſe things which they had gotten by Armes and valour. Therefore the opinion of all Hiſtorians is agreeing in this, that good lawes, the forme of governing a Commonwealth, all politicke ordinances, the Arts of diſputing and ſpeaking, have had their beginning from the Greeks, Romanes and French.

The aboundance of counſellors and Lawyers from France and Italy.

And from hence in times paſt and at this day a greater number of Writers, Lawyers and Counſellors of State have ſprung up, than in all the world beſides. Therefore that we may attribute their gifts to each Region, we affirme that, The Southerne people are borne and fit for the ſtudies of learning; the Northerne for warres, and thoſe which be betweene them both for Empire and rule. The Italian is naturally wiſe, the Spaniard grave and conſtant; the French quicke and diligent, for you would ſay he runs when he goes, being compared to the ſlow and womaniſh pace of the Spaniard, which is the cauſe that Spaniards are delighted with French ſervants for their quicke agillity in diſpatching buſines.

The manners of the Eaſtern people

The Eaſterne people are ſpecially endued with a good, firme and well tempered wit, not keeping their counſels ſecret and hid. For the haſte is of the nature of the Sunne, and that part of the day which is next to the riſing of the Sunne is counted the right-ſide and ſtronger; and verily in all living things the right ſide is alwayes the more ſtrong and vigorous.

The manners of the Weſtern people.

But the Weſterne people are more tender and effeminate, and more cloſe in their cariage and minde, not eaſily making any one partaker of their ſecrets. For the Weſt is, as it were ſubject to the Moone, becauſe at the change it alwaies inclines to the Weſt, wherby it happens, that it is reputed as nocturnall, ſiniſter and oppoſite to the Eaſt; and the Weſt is leſſe temperate and wholſome.

The Eaſt winde healthfull.

Therefore of the windes none is more wholſome than the Eaſtwinde which blowes from the weſt with a moſt freſh and healthfull gale, yet it ſeldome blowes, and but onely at Sun-ſet.

The Northern people great eaters and drinkers.

The Northerne people are good eaters, but much better drinkers, witty when they are a litle moiſtened with wine, and talkers of things both to be ſpoken and concealed, not very conſtant in their promiſes and agreements, but principall keepers and preſervers of ſhamefaſtnes and chaſtity, farre different from the inhabitants of the South, who are to be counted Barbarous.

The Northerne and Southerne have each their Crueltie.

Valer. Max. lib.9.cap.2.

who are wonderfull ſparing,ſober,ſecret and ſubtle,and much addicted to all ſorts of wicked Luſt. *Ariſtotle* in his Problemes ſaith that thoſe nations are barbarous and cruell,both which are burnt with immoderate heate, and which are oppreſt with exceſſive cold,becauſe a ſoft temper of the Heavens ſoftens the Manners and the minde. Wherfore both,as well the Northerne,as Scythians and Germans;and the Southerne, as Africans are cruell;but theſe have this of a certaine naturall ſtoutnes,and ſouldierlike boldnes,and rather of anger,than a wilfull deſire of revenge; becauſe they cannot reſtraine by the power of reaſon the firſt violent motions of their anger by reaſon of the heat of their blood. But thoſe of a certaine inbred and inhumane pravity of manners, wilfully and willingly premeditating they performe the workes of cruelty, becauſe they are of a ſad and melancholy nature. You may have an example of the Northerne cruelty from the Tranſilvanians againſt their ſeditious Captaine *George*, whom they gave to be torne in peeces alive and devoured by his Soldiers, (being kept faſting for three dayes before for that purpoſe) who was then unbowelled, and roſted, and ſo by them eaten up. The Cruelty of *Hannibal* the Captaine of the Carthaginians may ſuffiſe for an inſtance of the Southerne cruelty. He left the Romane Captives wearied with burdens and the lenght of the way, with the ſoles of their feet cut off; But thoſe he brought into his tents, joyning brethren and kinſmen together he cauſed to fight, neither was ſatisfied with blood before he brought all the victors to one man. Alſo we may ſee the cruell nature of the Southerne Americans, who dip their children in the blood of their ſlaine enemies, then ſucke their blood, and banquet with their broken and ſqueaſed Limbs.

The diſeaſes of the Southerne people.

And as the Inhabitants of the South are free from divers Plethoricke diſeaſes, which are cauſed by aboundance of blood, to which the Northerne people are ſubject, as Feavers, Defluxions, Tumors, Madneſſe with laughter which cauſeth thoſe which have it to leape and dance (The people commonly terme it *S. vittus his Evill*) which admits of no remedy but Muſicke: So they are often moleſted with the Frenſie invading with madneſſe and fury; by the heat whereof they are often ſo raviſhed and carried beſides themſelves that they foretell things to come; they are terrified with horrible dreames, and in their fits they ſpeake in ſtrange and forraigne tongues, but they are ſo ſubject to the ſcurfe and all kind of ſcabbs and to the Leproſie as their homebread diſeaſe, that no houſes are ſo frequently mett withall by ſuch as travell through either of the Mauritania's, as Hoſpitalls provided for the Lodging of Lepers.

Mountainers.

Thoſe who inhabit rough and Mountainous places, are more brutiſh, tough & able to endure labour: but ſuch as dwell in plaines, eſpecially if they be mooriſh, or fenniſh are of a tender body, and ſweate much with a litle labour; the truth of which is confirmed by the Hollanders and Frizlanders. But if the plaine be ſuch as is ſcortched by the heate of the Sunne, and blowne upon by much contrariety of windes, it breeds men who are turbulent, not to be tamed, deſirous of ſedition and novelty, ſtubborne, impatient of ſervitude, as may be perceived by the ſole example of the inhabitants of Narbon a province of France.

Thoſe who dwell in poore and barren places are commonly more witty and diligent and moſt patient of labours; the truth of which the famous witts of the Athenians, Ligurians and Romanes, and the plaine country of the Bœotians in Greece, of the Campanians in Italy, and of the reſt of the inhabiters adjoyning to the Ligurian ſea, approves.

CHAP. VIII.

Of the Faculties.

What a facultie is.

3. Faculties.

A Faculty is a certaine power, and efficient cauſe, proceeding from the temperament of the part, and the performer of ſome actions of the body. There are three principall Faculties governing mans body as long as it enjoyes its integrity;

tegrity; the Animall, Vitall and Naturall. The Animall is ſeated in the proper temperament of the Braine, from whence it is diſtributed by the Nerves into all parts of the body which have ſenſe and motion. This is of three kinds, for one is Moving, another ſenſative; the third principall The ſenſative conſiſts in the five externall ſenſes, ſight, hearing, taſte, ſmell and touch. The Moving principally remaines in the Muſcles and nerves, as the fit inſtruments of voluntary motion. The Principall comprehends the Reaſoning faculty, the Memory and Fantaſie. *Galen* would have the Common or inward ſenſe to be comprehended within the compaſſe of the Fantaſie, although *Ariſtotle* diſtinguiſheth betweene them.

The triple uſe of the Pulſe.

The Vitall abides in the Hart, from whence heat and life is diſtributed by the Arteryes to the whole body: this is principally hindered in the diſeaſes of the Breſt; as the Principall is, when any diſeaſe aſſailes the Braine; the prime action of the vitall faculty is Pulſation, and that continued agitation of the Heart and Arteryes, which is of threefold uſe to the body: for by the dilatation of the Heart and Arteryes the vitall ſpirit is cheriſhed by the benefit of the Aire which is drawne in; by the contraction thereof the vapours of it are purged and ſent forth, and the native heat of the whole body is tempered by them both.

The naturall faculty is threefold.

What Nutrition is.

Foure other faculties attend upon the nouriſhing faculty

The neceſſity of the retentive faculty.

Two excrements of every concoction.

The laſt is the Naturall faculty which hath choſen its principall ſeate in the Liver, it ſpreads or carries the nouriſhment over the whole body; but it is diſtinguiſhed into 3. other faculties; The Generative which ſerves for the generation and forming of the Iſſue in the wombe; the Growing or increaſing facultie which flouriſheth from the time the Iſſue is formed, untill the perfect growth of the ſolid parts into their full dimenſions of Length, height and bredth. The nouriſhing facultie which as ſervant to both the other repaires and repayes the continuall effluxe, and waſte of the threefold ſubſtance; for Nutrition is nothing elſe but a repleniſhing, or repairing whatſoever is waſted or emptied This nouriſhing facultie endures from that time the Infant is formed in the wombe untill the end of life. It is a matter of great conſequence in Phiſicke to know the 4 other faculties, which as ſervants attend upon the nouriſhing faculty; which are the Attractive, Retentive, Digeſtive, and Expulſive faculty. The Attractive drawes that juice which is fit to nouriſh the body, that I ſay which by application may be aſſimulated to the part. This is that faculty which in ſuch as are hungry drawes downe the meat ſcarſe chawed, and the drinke ſcarſe taſted, into the gnawing and empty ſtromacke. The Rententive faculty is that which retaines the nouriſhment once attracted untill it be fully laboured and perfectly concocted; And by that meanes it yeelds no ſmall aſſiſtance to the Digeſtive faculty. For the naturall heat cannot performe the office of concoction, unleſſe the meat be embraced by the part, and make ſome ſtay therein. For otherwiſe the meate carryed into the ſtomacke never acquires the forme of *Chylus*, unleſſe it ſtay detained in the wrincles thereof, as in a rough paſſage, untill the full time of *Chylification*. The Digeſtive faculty aſſimulates the nouriſhment, being attracted and detained, into the ſubſtance of that part whoſe Faculty it is, by the force of the inbred heate & proper diſpoſition or temper of the part. So the ſtomacke plainely changes all things which are eat and drunke into *Chylus*, & the Liver turnes the *Chylus* into blood. But the Bones & Nerves convert the red and liquid blood which is brought down unto them by the capillary or ſmall veins, into a white & ſolid ſubſtance. Such concoction is far more laborious in a Bone and nerve, than in the Muſculous fleſh. For the blood being not much different from its nature, by a light change and concretion turnes into fleſh. But this Concoction will never ſatisfie the deſire of Nature and the parts, unleſſe the nouriſhment purged from its excrements, put away the filth and droſſe, which muſt never enter into the ſubſtance of the part. Wherefore there do not onely two ſorts of excrements remaine of the firſt and ſecond Concoction, the one thicke, the other thin, as we have ſaid before; but alſo from the third Concoction which is performed in every part. The one of which we conceive onely by reaſon, being that which vaniſheth into Aire by inſenſible Tranſpiration. The other is knowne ſometimes by ſweats, ſometimes by a thicke fatty ſubſtance ſtayning the ſhirt; ſometimes by the generation of haire and nailes, whoſe matter is from fuliginous and earthly excrements of the third Concoction. Wherfore the fourth Faculty was neceſſary which might yeeld no ſmall helpe to nouriſhment;it is called the Expulſive,appointed to expell thoſe ſuperfluous excrements which by no action of heate can obtaine the forme of the part. Such faculties ſerving for nutrition are in ſome parts two-fold; as ſome common, the benefit of which redounds to the whole body,as in the ventricle,liver & veines; Others onely attending the ſervice of thoſe parts in which they remaine, and in ſome parts all theſe 4.aſwell common as proper,are abiding and reſident, as in thoſe parts we now mentioned:ſome with the 4. proper have onely two cōmon,as the Gall,Spleene, Kidneies and Bladder.Others are content onely with the proper, as the ſimular and Muſculous parts, who if they want any of theſe 4.faculties, their health is decayed either by want of nouriſhment,an ulcer,or otherwiſe.The like unnatural affects happen by the deficiency of juſt and laudable nouriſhment. But if it happen thoſe faculties do rightly performe their duty,the nouriſhment is changed into the proper ſubſtance of the part,and is truly aſſimulated,as by theſe degrees.Firſt it muſt flow to the part,then be joyned to it,then agglutinated, and laſtly as we have ſaid, aſſimulated. Now we muſt ſpeake of the Actions which ariſe from the faculties.

The worke of the expulſiue faculty.

By what degrees the nouriſhment is aſſimulated.

Chap. IX.

Of the Actions.

AN Action or Function is an active motion proceeding from a faculty; for as the facultie depends on the Temperament, ſo the Action on the faculty, and the Act or worke depends upon the Action by a certaine order of conſequence. But although that the words Actions and Act or worke are often confounded,yet there is this difference betweene them, as that the Action ſignifies the motion uſed in the performance of any thing; but the Act or worke, the thing already done and performed: for example, Nutrition and the Generating of fleſh are naturall Actions; but the parts nouriſhed,and a hollow ulcer filled with fleſh are the workes of that motion,or action. Wherfore the Act ariſeth from the Action, as the Action ariſeth from the faculty, the integrity or perfection of the inſtruments concurring in both. For as,if the facultie be either defective,or hurt,no Action will be well performed: ſo unleſſe the Inſtruments keepe their native and due conformitie (which is their perfect health, the operator of the Action proper to the inſtrument) none of thoſe things,which ought to be, will be well performed. Therefore for the performance of blameleſſe and perfect actions, it is fit a due conformity of the Inſtrument concurre with the faculty. But Actions are two fold; for they are either Naturall, or Voluntary. They are termed Naturall, becauſe they are performed not by our will, but by their owne accord and againſt our will: As are that continuall motion of the Heart,the beating of the Arteryes,the expulſion of the Excrements, and ſuch other like which are done in us by the Law of Nature whether we will, or no. Theſe Actions flow either from the Liver and veines,or from the Heart and Arteries. Wherfore we may comprehend them under the names of Naturall and Vitall Actions.For we muſt attribute his Action to each faculty, leſt we may ſeeme to conſtitute an idle faculty, and no way profitable for uſe.The unvoluntary vitall actions are the dilatation & contraction of the Heart and Arteryes,the which we comprehend under the ſole name of the Pulſe: by that they draw in, and by this they expell, or drive forth.The unvoluntary vitall actions be,

What an Action is,

An Action and an Act are different,

Natural Actions,

Generation Growth and Nutrition	which proceed from the	Generative, Growing,and Nouriſhing	facultie,

Generation is nothing elſe than a certaine producing,or acquiring of matter, and an introducing of a ſubſtantiall forme into that matter; this is performed by the aſſiſtance of 2.faculties; of the Altering which doth diverſly prepare and diſpoſe the ſeed and menſtruous blood to put on the forme of a Bone, nerve, ſpleene, fleſh and ſuch

Generation what it is,

ſuch like: of the Forming faculty which adornes with figure, ſite and compoſition, the matter ordered by ſo various a preparation.

What Growth is.

Growth is an inlarging of the ſolide parts into all the dimenſions, the priſtine and ancient forme remaining ſafe and ſound in figure and ſolidity. For the perfection of every growth is judged onely by the ſolid parts; for if the body ſwell into a maſſe of fleſh, or fat, it ſhall not therefore be ſaid to be growne: but then onely when the ſolid parts doe in like manner increaſe, eſpecially the bones, becauſe the growth of the whole body followes their increaſe, even although at the ſame time it waxe leane, and pine away.

What Nutrition is.

Nutrition is a perfect aſſimulation of that nouriſhment which is digeſted, into the nature of the part which digeſts. It is performed by the aſſiſtance of 4. ſubſidiary or helping actions, Attractive, Retentive, Digeſtive and Expulſive.

Action voluntary.

* *Anima ſentiens.*

The voluntary actions which we willingly performe, are ſo called, becauſe we can at our pleaſure hinder, ſtir up, ſlow or quicken them. They are three in generall, the ſenſitive, mooving, and principall Action. The ſenſative * Soule comprehends all things in fine ſenſes, in Sight, Hearing, Smell, Taſte and Touch. Three things muſt neceſſarily concurre to the performance of them, the Organe, the *Medium* or meane, and the Object. The principall Organe, or Inſtrument, is the Animall ſpirit diffuſed by the nerves into each ſeverall part of the body, by which ſuch actions are performed. Wherefore for the preſent we will uſe the Parts themſelves for their Organes. The Meane is a body, which carryes the Object to the Inſtrument. The Object is a certaine externall quality, which hath power by a fit *Medium* or Meane to ſtirre up and alter the Organe. This will be more manifeſt by relating the particular functions of the ſenſes by the neceſſary concurring of theſe three.

How ſight is performed.

Sight, is an action of the ſeeing facultie, which is done by the Eye fitly compoſed of its coates and humors, and ſo conſequently the Organicall body of this Action. The Object is a viſible quality brought to the Eye. But ſuch an Object is two-fold; for either it is abſolutely viſible of its ſelfe, and by its owne Nature, as the Sun, the fire, the Moone and Starres: or deſires as it were the helpe of another that it may be actually ſuch, for ſo by the commiſing of light the colours, which were viſible in power onely, being brought to the Eye doe ſeeme and appeare ſuch as they actually are. But ſuch Objects cannot arrive at the Eye, but thorough a cleere and illuminate *Medium*, as the Aire, Water, Glaſſe and all ſorts of Cryſtall.

How hearing.

The Hearing hath for its Organe the Eare and Auditory paſſage, which goes to the ſtony bone furniſhed with a Membrane inveſting it, an Auditory Nerve, and a certaine inward ſpirit there conteined. The Object is every ſound ariſing from the ſmitten or broken Aire, and the Colliſion of two bodyes meeting together. The *Medium* is the encompaſſing Aire which carryes the ſound to the Eare.

How ſmelling

Smelling (according to *Galens* opinion) is performed in the Mamillary proceſſes produced from the proper ſubſtance of the braine, and ſeated in the upper part of the noſe: although others had rather ſmelling ſhould be made in the very foremoſt ventricles of the braine. This Action is weake in man in compariſon of other Creatures: the Object thereof is every ſmell, or fumide exhalation breathing out of bodyes. The *Medium* by which the Object is carried to the noſes of Men, Beaſts and Birds, is the Aire, but to Fiſhes the Water it ſelfe. The Action of taſte is performed by the tongue being tempered well and according to nature, and furniſhed with a nerve ſpred over its upper part from the third and fourth conjugation of the Braine. The Object is * Taſte, of whoſe nature and kindes we will treate more at large in our Antidotary. The *Medium* by which the Object is ſo carried to the Organ, that it may affect it, is either externall, or internall: The externall is that ſpattle which doth as it were anoynt and ſupple the tongue; the internall is the Spongy fleſh of the tongue it ſelfe, which affected with the quality of the Object doth preſently ſo poſſeſſe the nerve that is implanted in it, that the kinde and quality thereof by the force of the ſpirit may be carryed into the common ſenſe. All parts endued with a nerve enjoy the ſenſe of touching, which is cheifly done, when a tractable quality doth

How the taſte

* *Sapor.*

How touching.

penetrate even to the true and nervous skinne, which lyeth under the Cuticle, or ſcarfe-skinne; we have formerly noted, that it is moſt exquiſite in the skinne which inveſts the ends of the fingers. The Object is every tractable qualitie, whether it be of the firſt ranke of qualities, as Heate, Cold, Moiſture, Dryneſſe, or of the ſecond, as Roughneſſe, Smoothneſſe, Heavineſſe, Lightneſſe, Hardneſſe, Softneſſe, Rarity, Denſity, Friability, Vnctuoſity, Groſſeneſſe, Thinneſſe. The *Medium* by whoſe procurement the inſtrument is affected, is either the skinne or the fleſh interwoven with many Nerves.

Of motion.

The next Action, is that Motion, which by a peculiar name wee call voluntary; this is performed and accompliſhed by a Muſcle, being the proper Inſtrument of voluntary Motion. Furthermore every motion of a member poſſeſſing a Muſcle is made either by bending and contraction, or by extention. Although generally there be ſo many differences of voluntary motion, as there are kinds of ſite in place; therefore Motion is ſaid to be made upward, downeward, to the righthand, to the left, forward and backward; Hither are referred the many kinds of motions, which the infinite variety of Muſcles produce in the body. Into this ranke of Voluntary Actions, comes Reſpiration, or breathing becauſe it is done by the helpe of the Muſcles; although it be cheifly to temper the heate of the Heart. For wee can make it more quicke, or ſlow as wee pleaſe, which are the conditions of a voluntary Motion.

How Reſpiration may be a voluntary motion.

Laſtly, that wee may have ſomewhat in which wee may ſafely reſt and defend our ſelves againſt the many queſtions which are commonly moved concerning this thing, we muſt hold, that Reſpiration is undergone and performed by the Animall faculty, but cheifly inſtituted for the vitall.

The Principall Action and prime amongſt the Voluntary is abſolutely divided in three; Imagination, Reaſoning and Memory.

The third principall Action.

Imagination is a certaine expreſſing, and apprehenſion which diſcernes and diſtinguiſheth betweene the formes and ſhapes of things ſenſible, or which are knowne by the ſenſes.

Reaſoning is a certaine judiciall æſtimation of conceived or apprehended formes or figures, by a mutuall collating, or comparing them together.

Memory is the ſure ſtorer of all things, and as it were the Treaſurie which the minde often unfolds and opens, the other faculties of the minde being idle and not imployed. But becauſe all the forementioned Actions whether they be Naturall, or Animall and voluntary, are done and performed by the helpe and aſſiſtance of the Spirits; Therefore now wee muſt ſpeake of the Spirits.

CHAP. X.

Of the Spirits.

What a ſpirit is.

THe ſpirit is a ſubtile and Aery ſubſtance, raiſed from the purer blood that it might be a vehicle for the faculties (by whoſe power the whole body is governed,) to all the parts, and the prime inſtrument for the performance of their office. For they being deſtitute of its ſweet approch doe preſently ceaſe from action, and as dead do reſt from their accuſtomed labours. From hence it is that making a variety of Spirits according to the number of the faculties, they have divided them into three; as one Animall, another Vitall, another Naturall.

Spirits threefold.

The Animall ſpirit.

The Animall hath taken his ſeate in the braine; for there it is prepared and made, that from thence conveyed by the Nerves is may impart the power of ſence and Motion to all the reſt of the members. An argument heereof is, that in the great Cold of Winter, whether by the intercepting them in their way, or by the concretion, or as it were freezing of thoſe ſpirits, the

Why ſo called *Anima.*

the joynts grow ſtiffe, the hands numme, and all the other parts are dull, deſtitute of their accuſtomed agillity of motion, and quickneſſe of ſenſe. It is called Animall not becauſe it is the * Life, but the cheife and prime inſtrument thereof; wherfore it hath a moſt ſubtile and Aery ſubſtance: and enjoyes divers names according to the various condition of the Senſoryes or ſeates of the ſenſes into which it enters; for that which cauſeth the ſight, is named the Viſive: you may ſee this by night, rubbing your eyes, as ſparkling like fire. That which is conveyed to the Auditorie paſſage, is called the Auditive or Hearing; That which is carried to the Inſtruments of Touching, is termed the Tactive; and ſo of the reſt.

How it is made.

This Animall ſpirit is made and laboured in the windings and foldings of the veines and Arteryes of the braine, of an exquiſite ſubtile portion of the vitall brought thither by the *Carotide Arteria*, or ſleepy Arteryes, and ſometimes alſo of the pure aire, or ſweete vapour drawne in by the Noſe in breathing. Hence it is, that with Ligatures we ſtoppe the paſſage of this ſpirit, from the parts we intend to cut off. An Humor which obſtructs or ſtopps its paſſage, doth the like in Apoplexies and Palſies, whereby it happens that the members ſcituate under that place doe languiſh and ſeeme dead, ſometimes deſtitute of motion, ſometimes wanting both ſence and motion.

The Vitall ſpirit.

The Vitall ſpirit is next to it in dignitie and excellency, which hath its cheife manſion in the left ventricle of the Heart, from whence through the Channells of the Arteryes it flowes into the whole body, to nouriſh the heate which reſides fixed in the ſubſtance of each part, which would periſh in ſhort time unleſſe it ſhould be refreſhed by heat flowing thither together with the ſpirit. And becauſe it is the moſt ſubtile next to the Animall, Nature (leſt it ſhould vaniſh away) would have it conteined in the Nervous coat of an Artery, which is five time more thicke, than the Coate of the veines, as *Galen*, out of *Herophilus*, hath recorded.

What the matter of it is.

It is furniſhed with matter from the ſubtile exhalation of the blood, and that aire which we draw in breathing. Wherefore it doth eaſily and quickly periſh by immoderate diſſipations of the ſpirituous ſubſtance, and great evacuations; ſo it is eaſily corrupted by the putrifaction of Humors, or breathing in of peſtilent aire and filthy vapours, which thing is the cauſe of the ſo ſuddaine death of thoſe which are infected with the Plague. This ſpirit is often hindred from entring into ſome part by reaſon of obſtruction, fulneſſe, or great inflammations, whereby it followes that in a ſhort ſpace, by reaſon of the decay of the fixed and inbred heat, the parts doe eaſily fall into a Gangrene and become mortified.

There is ſome doubt of the Naturall ſpirit.

The Naturall ſpirit (if ſuch there be any) hath its ſtation in the Liver and Veines. It is more groſſe and dull than the other, and inferior to them in the dignitie of the Action, and the excellencie of the uſe. The uſe thereof is to helpe the concoction both of the whole body, as alſo of each ſeverall part, and to carry blood and heate to them.

Fixed ſpirits.

Beſides thoſe already mentioned, there are other ſpirits fixed and implanted in the ſimular and prime parts of the body, which alſo are naturall, and Natives of the ſame place in which they are ſeated and placed. And becauſe they are alſo of an Aery and fiery nature, they are ſo joyned or rather united to the Native heate, that they can no more be ſeparated from it, than flame from heate; wherefore they with theſe that flow to them are the principall Inſtruments of the Actions, which are performed in each ſeverall part; And theſe fixed ſpirits have their nouriſhment and maintenance from the radicall and firſt-bred moiſture, which is of an Aery and oyly ſubſtance and is as it were the foundation of theſe Spirits and the inbred heat. Therefore without this moiſture no man can live a moment. But alſo the Cheife Inſtruments of life are theſe Spirits together with the native heate. Wherefore this radicall Moiſture being diſſipated and waſted, (which is the ſeate, fodder and nouriſhment of the Spirits and heate) how can they any longer ſubſiſt and remaine? Therefore the conſumption of the naturall heate followeth the decay of this ſweet and ſubſtance-making moiſture, and conſequently death, which happens by the diſſipating and reſolving of naturall heate.

The radicall moiſture.

Naturall death

But ſince then theſe kinde of Spirits with the naturall heate, is conteined in the ſubſtance of each ſimular part of our body (for otherwiſe it could not perſiſt) it muſt neceſſarily follow, that there be as many kinds of fixed Spirits, as of ſimular parts. For becauſe each part hath its proper temper and encreaſe, it hath alſo its proper ſpirit, and alſo its owne proper fixed and implanted heat, which heere hath its abode, as well as its Originall. Wherefore the ſpirit and heate which is ſeated in the bone, is different from that, which is impact into the ſubſtance of a Nerve, Veine or ſuch other ſimular part; becauſe the temper of theſe parts is different, as alſo the mixture of the Elements from which they firſt aroſe and ſprung up. Neither is this contemplation of ſpirits of ſmall account, for in theſe conſiſt all the force and efficacy of our Nature.

The vſe and neceſſity of the Spirits.

Theſe being by any chance diſſipated or waſted, wee languiſh, neither is any health to be hoped for, the floure of life withering and decaying by litle and litle. Which thing ought to make us more diligent, to defend them againſt the continuall effluxe of the threefold ſubſtance. For if they be decayed, there is left no proper Indication of curing the diſeaſe, ſo that we are often conſtrained, all other care laid aſide, to betake our ſelves to the reſtoring and repayring the decayed powers. Which is done by meats of good juyce, eaſie to be concocted and diſtributed, good Wines and fragrant ſmells.

What the remedy for the diſſipation of the ſpirits.

What the remedy for oppreſſion of the ſpirits is.

But ſometimes theſe Spirits are not diſſipated, but driven in and returned to their fountaines, and ſo both oppreſſe and are oppreſt; whereupon it happens we are often forced to dilate and ſpread them abroad by binding and rubbing the parts. Hitherto wee have ſpoke of theſe things which are called Naturall, becauſe we naturally conſiſt of them; it remaines that we now ſay ſomewhat of their Adjuncts and aſſociates by familiarity of Condition.

The Adjuncts and Aſſociates to things Naturall, are
- Age: of which, by reaſon of the ſimilitude of the Argument, wee were conſtrained to ſpeake when we handled the Temperatures.
- Sexe.
- Colour; of which we have already ſpoken.
- The Conformation of the inſtrumentall parts.
- Time, whoſe force we have alſo conſidered.
- Region.
- Order of Diet and Condition of life.

CHAP. XI.

Of the Adjuncts of things Naturall.

What ſexe is.

The nature of weomen.

SExe is no other thing than the diſtinction of Male and Female, in which this is moſt obſervable, that for the parts of the body, and the ſite of theſe parts, their is litle difference betweene them; but the Female is colder than the Male. Wherefore their ſpermaticall parts are more cold, ſoft and moyſt, and all there naturall actions leſſe vigorous, and more depraved.

Of Eunuches.

The Nature of Eunuches is to be referred to that of weomen, as who may ſeeme to have degenerated into a womaniſh nature, by deficiency of heate; their ſmooth body and ſoft and ſhirle voyce doe very much aſſimulate weomen. Notwithſtanding you muſt conſider that there be ſome Manly weomen, which their manly voyce and chinne covered with a litle hairineſſe doe argue; and on the contrary, there are ſome womanizing, or womaniſh men, which therefore we terme dainty and effeminate.

Of Hermaphrodites. The Hermaphrodite as of a doubtfull nature and in the middle of both ſexes ſeemes to participate of both Male and Female.

Colour the bewrayer of the Temperament The Colour which is predominante in the habite and ſuperficies of the body and lyes next under the ſkinne, ſhewes the temperament of what kinde ſoever it be; for as *Galen* notes *in Comment. ad Aphor.* 2. *ſect.* 1. Such a colour appeares in us, as the contained humor hath. Wherefore if a roſie hew coloure the cheekes, it is a ſigne the body abounds with blood, and that it is carryed abroad by the plenty of Spirits. But if the ſkinne be dyed with a yellow colour, it argues Choler, is predominante; if with a whitiſh and pallide hew, Phlegme; with a ſable and duſky, Melancholy. So the colour of the excrements which are according to Nature is not of the leaſt conſideration. For thus, if an ulcer being broken ſend forth white matter, it argues the ſoundneſſe of the part from whence it flowes; but if ſanious or bloody, greene, blackiſh, or of divers colours, it ſhewes the weaknes of the ſolide part, which could not aſſimulate by concoction the colour of the excrementitious humor. The like reaſon is of unnaturall Tumors; For, as the colour, ſo the Dominion of the Humor cauſing or accompanying the ſwelling commonly is.

The perfection of the organicall parts conſiſts in 4. things. The Conformitie, and integrity of the Organicall parts is conſidered by their figure, greatneſſe, number, ſituation and mutuall connexion. Wee conſider the figure, when wee ſay almoſt all the externall parts of the body are naturally round, not onely for ſhew, but for neceſſitie, that being ſmooth, and no way cornered, they ſhould be leſſe obnoxious to externall injuries; wee ſpeake of Greatneſſe, when wee ſay, ſome are large and thicke, ſome lancke and leane. But wee conſider their number, when we obſerve ſome parts to abound, ſome to want, or nothing to be defective or wanting. Wee inſinuate ſite and connexion when wee ſearch, whether every thing be in its proper place, and whether they be decently fitted, and well joyned together.

We have handled the varyeties of the foure ſeaſons of the yeare, when we treated of Temperaments. But the conſideration of Region (becauſe it hath the ſame judgment that the Aire) ſhall be referred to that diſquiſition, or enquiry which we entend to make of the Aire, amongſt the Things not naturall.

Diet. The Manner of life and order of Diet are to be diligently obſerved by us, becauſe they have great power either to alter, or preſerve the Temperament. But becauſe they are of almoſt infinite variety, therefore they ſcarſe ſeeme poſſible to fall into Arte, which may proſequute all the differences of Diet and vocations of life. Wherefore if the Calling of Life be laborious, as that of huſbandmen, Marriners, and other ſuch trades, it ſtrengthens and dryes the parts of the body. Although thoſe which labour much about Waters, are moſt commonly troubled with cold and moyſt diſeaſes although they almoſt kill themſelves with labour.

Againe, thoſe which deale with Mettalls, as all ſorts of Smithes, and thoſe which caſt and worke braſſe, are more troubled with hotte diſeaſes, as feavers. But if their Calling be ſuch as they ſit much, and worke all the day long ſitting at home, as ſhooemakers; it makes the body tender, the fleſh effeminate and cauſeth great quantity of excrements. A life as well idle and negligent in body, as quiet in minde, in all riotouſnes and exceſſes of Dyet, doth the ſame. For from hence the body is made ſubject to the ſtone, gravell and Gout.

The commodities of an indifferent Diet. That calling of life which is performed with moderate labour, clothing and dyet, ſeemes very fit and convenient to preſerve the naturall temper of the body. The Ingenious Chirurgeon may frame more of himſelfe that may more particularly conduce to the examination of theſe things. Therefore, the things naturall, and thoſe which are neere or Neighbouring to them being thus briefly declared, the Order ſeemes to require that wee make enquiry of Things not Naturall.

CHAP. XII.

Of things not Naturall.

THe things which wee muſt now treate of, have by the latter Phyſitions beene termed, Not naturall; becauſe they are not of the number of thoſe which enter into the conſtitution, or compoſure of mans body; as the Elements, Humors, and all ſuch things which we formerly comprehended vnder the name of Naturall : Although they be ſuch as are neceſſary to preſerue and defend the body already made and compoſed. Wherefore they were called by *Galen* Preſervers, becauſe by the due uſe of them the body is preſerved in health. Alſo they may be called doubtfull; and Neuters, for that rightly and fitly uſed they keepe the body healthfull; but inconſiderately, they cauſe diſeaſes. Whereby it comes to paſſe that they may be thought to pertaine to that part of Phiſicke which is of preſerving health, not becauſe ſome of theſe things ſhould be abſolutely and of their owne nature wholſome, and others unwholſome, but onely by this, that they are, or prove ſo by their convenient, or prepoſterous uſe. Therefore we conſider the uſe of ſuch like things from 4 conditions, quantitie, quality, occaſion, and manner of uſing; if thou ſhalt obſerve theſe, thou ſhalt attaine and effect this, that thoſe things which of themſelves are as it were, doubtfull, ſhall bring certaine and undoubted health. For theſe 4. Circumſtances doe ſo farre extend, that in them as in the perfection of Arte, the Rules which may be preſcribed to preſerve health are contained. But *Galen* in another place hath in 4. words comprehended theſe things not Naturall; as things Taken, Applyed, Expelled, and to be Done. Things Taken are thoſe which are put into the body, either by the mouth or any other way, as the Aire, meate and drinke. Things Applyed are theſe which muſt touch the body, as the Aire now mentioned, affecting the body with a diverſe touch of its qualityes of heat, cold, moyſture or dryneſſe. Expelled are, what things ſoever being unprofitable are generated in the body and require to be expelled. To be Done are labour, reſt, ſleepe, watching and the like. We may more diſtinctly and by expreſſion of proper names revoke all theſe things to ſixe; which are

Why they are called things not naturall.

Galen. 1. *ad Glauconem.*

1. *de ſanitat. tuenda.*

Aire,
Meat and Drinke,
Labour and Reſt,
Sleepe and Watching,
Repletion and Inanition, or things to be expelled, or retained and kept,
Perturbations of the Minde.

CHAP. XIII.

Of the Aire.

AIre is ſo neceſſary to life, that we cannot live a moment without it, if ſo be that breathing, and much more tranſpiration, be not to be ſeparated from life. Wherefore it much conduceth to know, what Aire is wholſome, what unwholſome, and which by contrariety of qualities fights for the Patient againſt the diſeaſe; or on the contrary by a ſimilitude of qualities ſhall nouriſh the diſeaſe, that if it may ſeeme to burden the Patient by increaſing or adding to the diſeaſe, we may correct it by Arte. So in curing the wounds of the head, eſpecially in Winter, we labour by all the means we may to make the aire warme. For cold is hurtfull to the Braine, Bones, and the wounds of theſe parts; and heat is comfortable and friendly. But alſo the aire being drawne into the body by breathing when it is

How neceſſary for life the aire is.

is hotter than ordinarie, doth with a new warmth overheate the heart, lungs and ſpirits, and weaken the ſtrength by the diſſipation of the ſpirits too much attenuated; ſo being too cold, in like manner the ſtrength of the faculties faints and growes dull, either by ſuppreſſion of the vapours, or by the inſpiſſation, or thickning of the ſpirits.

What Aire is hurtfull,

Therefore to conclude, that Aire is to be eſteemed healthfull, which is cleere, ſubtile, and pure, free and open on every ſide, and which is farre remote from all carrion-like ſmells of dead carkaſſes, or the ſtench of any putrifying thing whatſoever: the which is farre diſtant from ſtanding pooles, and fennes and caves, ſending forth ſtrong and ill vapours; neither too cloudy nor moiſt by the neareneſſe of ſome river.

Such an Aire, I ſay, if it have a vernall temper, is good againſt all diſeaſes. That aire which is contrary to this is altogether unhealthfull, as that which is putrid, ſhut up, and preſt, by the ſtraitneſſe of neighbouring mountaines, infected with ſome noyſome vapour. And becauſe I cannot proſecute all the conditions of aires, fit for the expelling of all diſeaſes, as which are almoſt infinite, it ſhall ſuffice here to have ſet downe, what we muſt underſtand by this word Aire.

Three things are underſtood by the name of the aires

Phyſitions commonly uſe to underſtand three things, by the name of Aire; The preſent ſtate of the Aire; The Region in which wee live; and the ſeaſon of the yeare. Wee ſpoke of this laſt, when wee treated of Temperaments. Wherefore wee will now ſpeake of the two former. The preſent ſtate of the Aire, one while for ſome ſmall time, is like the Spring, that is temperate; otherwhiles like the Summer, that is hot and drie; otherwhiles like the Winter, that is cold and moiſt; and ſometimes like the Autumne which is unequall; and this laſt conſtitution of the Aire, is the cauſe of many diſeaſes. When upon the ſame day, it is one while hot, another cold, we muſt expect Autumnall diſeaſes. Theſe tempers and varieties of conſtitutions of the Aire, are chiefely and principally ſtirred up by the windes; as which being diffuſed over all the Aire, ſhew no ſmall force by their ſodaine change. Wherefore we will briefly touch their natures: That which blowes from the Eaſt, is called the Eaſt-winde, and is of a hot and drie nature, and therefore healthfull. But the Weſterne winde is cold and moiſt, and therefore ſickly. The South winde is hot and moiſt, the Author of putrifaction and putride diſeaſes. The North winde is cold and drie, therefore healthy: wherefore it is thought, if it happen to blow in the dogge-dayes, that it makes the whole yeare healthfull, and purges and takes away the ſeedes of putrifaction, if any chance to be in the aire. But this deſcription of the foure windes, is then onely thought to be true, if we conſider the windes in their owne proper nature, which they borrow from theſe Regions, from which they firſt proceede. For otherwiſe they affect the aire quite contrarie, according to the diſpoſition of the places over which they came, as ſnowie places, Seaes, Lakes, Rivers, Woods, or ſandy plaines, from whence they may borrow new qualities, with which they may afterwards poſſeſſe the aire, and ſo conſequently our bodies.

Aphor. 4. ſect. 3.
The force of the windes.

How the windes acquire other faculties, than they naturally have.

The Weſt-winde of it ſelfe unwholſome.

Hence it is we have noted the Weſterne winde unwholſome, and breeding diſeaſes, by reaſon of the proper condition of the Region from whence it came; and ſuch, that is cold and moiſt; the *Gaſconies* finde it, truly to their ſo great harme, that it ſeldome blowes with them, but it brings ſome manifeſt and great harme, either to their bodies, or fruits of the earth. And yet the *Greekes*, and *Latines* are wont to commend it for healthfulneſſe, more than the reſt. But alſo the riſing and ſetting of ſome more eminent ſtars, doe often cauſe ſuch cold windes, that the whole aire is cooled, or infected with ſome other maligne qualitie. For vapours and exhalations are often raiſed by the force of the ſtars, from whence windes, cloudes, ſtormes, whirlewindes, lightnings, thunders, haile, ſnow, raine, earthquakes, inundations, and violent raging of the ſea, have their original. The exact contemplation of which things, although it be proper to Aſtronomers, Coſmographers, and Geographers, yet *Hippocrates* could not omit it, but that he muſt ſpeake ſomthing in his book *De aëre & aquis*, where he touches by the way, the deſcription of the neighbouring Regions, and ſuch as hee knew.

What force ſtars have upon the aire.

From this force of the aire, either hurtfull, or helping in diſeaſes, came that famous obſervation of *Gnido* of Caulias, That wounds of the head are more difficult to cure at Paris, than at Avignion, and the plaine contrarie of wounds of the legges; for the aire of Paris compared to that of Avignion is cold and moiſt, wherefore hurtfull and offenſive to the wounds of the head. On the contrary, the ſame aire, becauſe it obſcures the ſpirits, incraſſates the bloud, condenſates the humors, and makes them leſſe fit for defluxions, makes the wounds of the legges more eaſie to be healed, by reaſon it hinders the courſe of the humors, by whoſe defluxion the cure is hindered. But it is manifeſt, that hot and drie places make a greater diſſipation of the naturall heate, from whence the weakeneſſe of the powers; by which ſame reaſon the Inhabitants of ſuch places doe not ſo well endure bloudletting; but more eaſily ſuffer purgations, though vehement, by reaſon of the contumacie of the humor, cauſed by drineſſe. To conclude, the aire changes the conſtitutions of our bodies, either by its qualities, as if it be hotter, colder, moiſter, or drier; or by its matter, as if it be groſſer, or more ſubtile than is fit, or corrupted by exhalations from the earth; or by a ſodaine and unaccuſtomed alteration, which any man may prove, who makes a ſodaine change out of a quiet aire into a ſtormy and troubled with many windes. But becauſe, next to the aire, nothing is ſo neceſſary to nouriſh mans body, as meate and drinke, I will now beginne to ſpeake of them both.

How the aire of Paris comes to be ill for wounds of the head, and good for thoſe of the legge.

By what meanes the aire changes our bodies.

Chap. XIIII.

Of Meate and Drinke.

THat this our Treatiſe of meate and drinke may be more briefe and plaine, I have thought good to part it into theſe heads, as to conſider the goodneſſe and illneſſe of both of them, their quantitie, qualitie, cuſtome, delight, order, time, and to accommodate them all to the ages and ſeaſons of the yeare. We judge of the goodneſſe and pravity of meates and drinkes, from the condition of the good or vicious humors, or juyce which they beget in us. For evill juyce cauſeth many diſeaſes. As on the contrary, good juice drives away all diſeaſes from the body, except the fault happen from ſome other occaſion, as from quantity, or too much exceſſe. Wherefore it is principally neceſſary, that thoſe who will preſerve their preſent health, and hinder the acceſſe of diſeaſes, feede upon things of good nouriſhment and digeſtion, as are good wine, the yolkes of egges, good milke, wheaten bread well baked, the fleſh of Capons, Pertridge, Thruſhes, Larkes, Veale, Mutton, Kid, and ſuch like other, which you may finde mentioned in the Bookes which *Galen* writ *de Alimentorum facultatibus*; where alſo he examines thoſe which are of evill juice by their manifeſt qualities, as acrimony, bitterneſſe, ſaltneſſe, aciditie, harſhneſſe and ſuch like.

The goodneſſe of nouriſhments.

But unleſſe we uſe a convenient quantitie and meaſure in our meates, howſoever laudable they be, we ſhal never reape theſe fruits of health we hoped for. For they yeild matter of diſeaſes, by the onely exceſſe of their quantity; but wee may by this know the force of quantitie on both parts, becauſe often the poiſonous quality of meates of ill nouriſhment doth not hurt, by reaſon they were not taken into the body into a great quantitie. That meaſure of quantitie is chiefely to be regarded in diſeaſes: for as *Hippocrates* ſaith, if any give meate to one ſick of a feaver, he gives ſtrength to the well, and increaſes the diſeaſe to the ſicke, eſpecially if he doe not uſe a meane. Wherefore it is a thing of no ſmall conſequence, to know what diſeaſes require a ſlender and what a large diet; of which thing there is large relation made in the 1 Section of the Aphoriſmes of *Hippocrates*; where he teacheth, the ſicke muſt feed more largely in the beginnings of long diſeaſes, wherby they may be inabled to indure the length of the diſeaſe, and laſt to the ſtate thereof. But in ſharpe and violent diſeaſes, which preſently come to their height, wee muſt uſe a ſlender diet; but moſt ſlender, when the diſeaſe is in the height; and beſides, all our conſultations in this kinde, muſt be referred to the ſtrength of the patients. But thoſe who enjoy their perfect health, muſt uſe a quantitie of meate, agreable to their evacuation and tranſpiration; for men by reaſon of the ſtrength of their heate, and the more copious diſſipation of the triple ſubſtance, have greater appetite, than women; altogether by the ſame reaſon, that young people, and

Their quantitie.

The quantitie of meates muſt be eſteemed, according to the nature of the diſeaſe, and ſtrength of the Patient.

ſuch

The qualities of meate.

Old age is a diſeaſe.

Aphor. 16. ſect. 1.

ſuch as grow, need more frequent and plentifull nouriſhment, than old men; and alſo amongſt young men of the like age, ſome doe rightly require more copious nouriſhment than other ſome, that is, according to the quantitie of their evacuations and cuſtome. Certainly for gluttony, it is ſuch as may be extended to all; but we all ſhould take ſo much meate and drinke, that our powers may be refreſhed and not oppreſſed: for by the decree of *Hippocrates*, theſe be the two compendiary wayes of preſerving health; not to be over-filled with meate, and to be quicke to worke; and thus much of the quantity of meates. Neither muſt theſe who are either ſound, or ſicke, have leſſe regard to the qualities of their meates; and thoſe are either the firſt, as heating, cooling, moiſtening, drying; or the ſecond, attenuating, incraſſating, obſtructing, opening, or ſome other like, working according to the condition of their nature. The manner of our diet is not onely to be framed according to theſe, but alſo to be varied; for the preſent ſtate of ſuch as be in health, requires to be preſerved by the uſe of like things. As hot and moiſt nouriſhment is to be preſcribed to children, as to thoſe which are hot and moiſt: and cold, and drie, to old men, as to thoſe who are cold and drie; if ſo be that vulgar ſaying be true, that, Health delights in the uſe of like things. Yet becauſe old age how greene and new begun howſoever it be, is of it ſelfe as it were, a diſeaſe, it ſeemes to be more convenient, both to truth and for health, that old people ſhould eate meats contrary to their nature, that is, hot, and moiſt, that ſo wee may deferre as much as we can, the cauſes of death, cold and drineſſe, which haſten the deſtruction of that age. For wee muſt reſiſt diſeaſes by the uſe of their contraries, as thoſe things which are contrary to nature. For otherwiſe, as much meate as you give to the ſicke, you adde ſo much ſtrength to the diſeaſe. And the ſame is the cauſe why *Hippocrates* ſaid, that a moiſt diet is convenient for all ſuch as are ſicke of feavers, becauſe a feaver is a drie diſtemperature. Therefore wee muſt diligently prie into the nature of the diſeaſe, that knowing it, wee may endeavour to abate its fury by the uſe of contraries.

The force of Cuſtome.

Aphor. 91. ſect. 2.

Aphor. 38. ſect. 2.

Accuſtomed meates are more gratefull, and ſo by that meanes more nouriſhing.

2

But if cuſtome (as they ſay) be another nature, the Phyſition muſt have a great care of it, both in ſound and ſicke. For this ſometimes by little and little and inſenſibely, changes our naturall temperament, and inſtead thereof gives us a borrowed temper. Wherefore if any would preſently or ſodainely change a cuſtome which is ſometimes ill, into a better, truly hee will bring more harme, than good; becauſe all ſodaine changes (according the opinion of *Hipocrates*) are dangerous. Wherefore if neceſſitie require, that we ſhould withdraw any thing from our cuſtome, we muſt doe it by little and little, that ſo nature may by degrees be accuſtomed to contraries without violence, or the diſturbance of its uſuall government. For that meate and drinke which is ſomewhat worſe, but more pleaſant and familiar by cuſtome, is to be preferred (in *Hippocrates* opinion) before better, but leſſe pleaſant and accuſtomed. Hence is it, that Countrie-men doe very well digeſt Beefe and Bacon, which commonly they uſe; but will turne into nidorulent vapours, Partridge, Capons, and other meate of good nouriſhment, ſooner than change them into good and laudable *Chylus*. The cauſe of which thing is not onely to be attributed unto the propertie of their ſtronger, and as it were burning heate, but much more to cuſtome, which by a certaine kinde of familiarity, cauſeth that meates of hard digeſtion are eaſily turned into laudable bloud. For the force of cuſtome is ſo great, that accuſtomed meates are more acceptable; whereby it comes to paſſe, that while the ſtomacke delights in them, it more ſtreightly embraces them, and happily digeſts them, without any trouble of loathing, vomiting, or heavineſſe. All the contrary meete and happen in the uſe of meates which are unpleaſant to the taſte and ſtomacke. For the ventricle abhorring thoſe things, makes manifeſt how it is troubled by its acide and nidorulent belchings, loathing, nauſeouſneſſe, vomite, heavineſſe, paine of the head, and trouble of the whole body.

Wherefore we muſt diligently enquire, what meates the Patient chiefely delighted in, that by offering them, his appetite languiſhing by reaſon of ſome great evacuation, vomit, or the like, may be ſtirred up. For it will be better and more readily reſtored by things acceptable, though they be ſomewhat worſe, as we noted a little before out of *Hippocrates*. By which words hee plainely taught, that it is the part of a good and prudent Phyſition to ſubſcribe to, and pleaſe the palate of his patient.

The order of eating our meats.

But ſeeing that order is moſt beautifull in all things, it is truly very neceſſary in eating our meate: for how laudable ſoever the meates bee in their quantity and qualitie, howſoever familiar by uſe, and gratefull by cuſtome, yet unleſſe they be eaten in due order, they will either trouble or moleſt the ſtomacke, or be ill, or ſlowly and difficultly concocted; wherefore we muſt diligently obſerve, what meates muſt be eaten at the firſt, and what at the ſecond courſe; for thoſe meates which be hard to concoct, are not to be eaten before thoſe which are eaſy of digeſtion; neither drie and aſtringent things, before moiſtening and looſing.

We muſt begin our meales with moiſt or liquid meat.

But on the contrary, all ſlippery, fat, and liquid things, and which are quickly changed ought to goe before, that ſo the belly may be moiſtened; and then aſtringent things muſt follow, that the ſtomacke, by their helpe, being ſhut, and drawne together, may more ſtraitly comprehend the meate on every ſide, and better performe the Chylification by its proper heate united and joyned together.

For this cauſe *Hippocrates Lib. de victu in acutis*, commands thoſe things to be alwayes eaten in the morning, which are fit to looſen the belly, and in the evenings ſuch as nouriſh the body. Yet notwithſtanding drinke ought not to preceede, or goe before meate, but on the contrary meate muſt preceede drinke, by the order preſcribed by him.

The time of eating.

The profit of labour before meate.

Whether ought wee in our eating to have leſſe care of the time, than wee have of the order: for the time of eating of ſuch as are healthfull, ought to be certaine and fixt; for at the accuſtomed houre, and when hunger preſſes, any ſound man, and which is at his owne diſpoſure may eate, but exerciſe and accuſtomed laboures ought to goe before; for it is fit, according to the precept of *Hippocrates*, that labour preceed meate, whereby the excrements of the third concoction may be evacuated, the native heate encreaſed, and the ſolid parts confirmed and ſtrengthened, which are three commodities of exerciſe very neceſſary to the convenient taking of meate. But in ſicke perſons we can ſcarſe attend, and give heed to theſe circumſtance of time, and accuſtomed houre of feeding; for that Indication of giving meate to the ſicke, is the beſt of all, which is drawne from the motion of the diſeaſe, and the declining of the fit: for if you give meate in feavers, ſpecially the fit then taking the Patient, you nouriſh not him, but the diſeaſe. For the meate then eaten, is corrupted in the ſtomacke, and yeelds fit matter for the diſeaſe. For meate (as we noted before out of *Hippocrates*) is ſtrength to the ſound, and a diſeaſe to the ſicke, unleſſe it be eaten at convenient time, and diligent care be had of the ſtrength of the Patient, and greatneſſe of the diſeaſe.

We muſt not give meat in a fit of a Fever.

But neither is it convenient that the meate ſhould be ſimple, and of one kinde, but of many ſorts, and of divers diſhes dreſſed after different formes, leſt nature by the continuall and hatefull feeding upon the ſame meate, may at the length loath it, and ſo neither ſtraitly containe it, nor well digeſt it; or the ſtomacke accuſtomed to one meate, taking any loathing thereat, may abhorre all other: and as there is no deſire of that we doe not know, ſo the dejected appetite cannot be delighted and ſtirred up, with the pleaſure of any meate which can be offered. For wee muſt not credit thoſe ſuperſtitious, or too nice Phyſitions, who thinke the digeſtion is hindered by the much varietie of meates.

Variety of meats.

The matter is farre otherwiſe, for by the pleaſure of what things ſoever the ſtomacke allured doth require, it embraces them more ſtraitly, and concocts them more perfectly. And our nature is deſirous of varietie.

Why variety of meats is good.

Moreover, ſeeing our body is compoſed of a ſolid, moiſt, and airy ſubſtance, and it may happen, that by ſo many laboures, which we are compelled to undergoe, and ſuſtaine in this life, one of theſe may ſuffer a greater diſſipation and loſſe than another; therefore the ſtomacke is neceſſarily compelled to ſeeke more variety, leſt any thing ſhould be wanting to repaire that which is waſted. But alſo the age and ſeaſon of the yeare, yeeld Indications of feeding, for ſome things are convenient for a young man, ſome for an old, ſome in Summer, ſome in Winter. Whereſore wee ought to know what befits each age and ſeaſon. Children need hot, moiſt, and much nouriſhment, which may not onely ſuffice to nouriſh, but encreaſe the body. Where-

Indications of feeding, taken from the age.

fore we ought to know what befits each age and ſeaſon. Children need hot, moiſt,and much nouriſhment, which may not onely ſuffice to nouriſh, but encreaſe the body. Wherefore they worſt endure faſting, and of them, eſpecially thoſe who are the moſt lively and ſpiritfull. With old men it is otherwiſe, for becauſe their heate is ſmall,they neede little nouriſhment, and are extinguiſhed by much. Wherefore old men eaſily endure to faſt, they ought to be nouriſhed with hot and moiſt meates, by which their ſolid parts, now growing cold and drie, may be heated and moiſtened, as by the ſweet nouriſhment of ſuch like meates. Middle aged men delight in the moderate uſe of contraries to temper the exceſſe of their too acride heate. Young people as temperate are to be preſerved by the uſe of like things.

Indication from the time of the yeare.

The manner of diet in Winter muſt be hot and inclining to drineſſe. Wherefore then we may more plentifully uſe roſt-meates, ſtrong wines and ſpices; becauſe in the Winter ſeaſon we are troubled with the cold and moiſt aire, and at the ſame time, have much heate inwardly; for the inner parts, according to *Hippocrates*, are naturally moſt hot in the Winter and the Spring, but feaveriſh in Summer; ſo the heat of Summer is to be tempered by the uſe of cold and moiſt things, and much drinke. In the temperate Spring all things muſt be moderate; but in Autumne, by little and little, we muſt paſſe from our Summer, to our Winter diet.

CHAP. XV.

Of Motion and Reſt.

What motion ſignifies.

Three kinds of frictions.

Hard.

Gentle.

Indifferent.

HEre Phyſitians admoniſh us, that by the name of Motion, we muſt underſtand all ſorts of exerciſes, as walking, leaping, running, riding, playing at tennis, carrying a burden, and the like. Friction or rubbing is of this kinde, which in times paſt was in great uſe and eſteeme, neither at this day is it altogether neglected by Phyſitians. They mention many kinds of it, but they may be all reduced to three, as one gentle, another hard, a third indifferent; and that of the whole body, or onely of ſome part thereof. The friction is called hard, which is made by the rough, or ſtrong preſſure of the hands, ſpunges, or a courſe and new linnen cloth: it drawes together, condenſates, bindes and hardens the fleſh, yet if it bee often and long uſed,at length it rarifies,diſſolves,attenuates and diminiſhes the fleſh, and any other ſubſtance of the body; and alſo it cauſeth revulſion, and drawes the defluxion of humors from one part to another. The gentle friction which is performed by the light rubbing of the hand, and ſuch like, doth the contrarie, as ſoftens, relaxes, and makes the skinne ſmooth and unwrinckled, yet unleſſe it be long continued it doth none of theſe, worthy to be ſpoken of. The indifferent kinds conſiſting in the meane betwixt the other two, increaſeth the fleſh, ſwells or puffes up the habite of the body, becauſe it retaines the bloud and ſpirits which it drawes and ſuffers them not to be diſſipated.

The uſe of exerciſes.

The benefit of exerciſe is great, for it increaſes naturall heate, whereby better digeſtion followes, and by that meanes nouriſhment, and the expulſion of the excrements, and laſtly, a quicker motion of the ſpirits, to performe their offices in the bodie, all the wayes and paſſages being cleanſed. Beſides, it ſtrengthens the reſpiration, and the other actions of the body, confirmes the habite, and all the limbes of the body, by the mutuall attrition of the one with the other; whereby it comes to paſſe they are not ſo quickly wearied with labour. Hence we ſee that Country people are not to be tired with labour.

What the fitteſt time for exerciſe.

If any will reape theſe benefits by exerciſe, it is neceſſary that he take opportunity to beginne his exerciſe, and that he ſeaſonably deſiſt from it, not exerciſing himſelfe violently and without diſcretion; but at certaine times according to reaſon.

Wherefore the beſt time for exerciſe will be before meate (that the appetite may be encreaſed by augmenting the naturall heate) all the excrements being evacuated, leſt nature being hungry and empty, doe draw and infuſe the ill humors contained in the guts, and other parts of the body, into the whole habite, the liver, and other noble parts. Neither is it fit preſently, after meate, to runne into exerciſe, leſt the crude humors and meats not well concocted be carried into the veines. The meaſure and bounds of exerciſe muſt be, when the body appeares more full, the face lookes red, ſweat beginnes to breake forth, we breathe more ſtrongly and quicke, and begin to grow weary; if any continue exerciſe longer, ſtifneſſe, and wearineſſe aſſayles his joints, and the body flowing with ſweate ſuffers a loſſe of the ſpirituous and humid ſubſtance which is not eaſily repaired; by which it becomes more cold, and leane even to deformitie.

The qualitie of exerciſe.

The qualitie of exerciſe which we require, is in the midſt of exerciſe, ſo that the exerciſe muſt be neither too ſlow and idle, neither too ſtrong, nor too weake, neither too haſty, nor remiſſe, but which may move all the members alike. Such exerciſe is very fit for ſound bodies. But if they be diſtempered, that ſort of exerciſe is to be made choiſe of, which by the qualitie of its exceſſe, may correct the diſtemper of the body, and reduce it to a certaine mediocritie. Wherefore ſuch men as are ſtuffed with cold, groſſe, and viſcous humors, ſhall hold that kinde of exerciſe moſt fit for them, which is more laborious, vehement, ſtrong, and longer continued. Yet ſo, that they doe not enter into it before the firſt and ſecond concoction, which they may know by the yellowneſſe of their urine. But let ſuch as abound with thinne and cholericke humors chuſe gentle exerciſes, and ſuch as are free from contention, not expecting the finiſhing of the ſecond concoction, for the more acride heate of the ſolid parts delights in ſuch halfe concocted juices, which otherwiſe it would ſo burne up, all the glutinous ſubſtance thereof being waſted, that they could not be adjoyned, or faſtened to the parts. For the repeating, or renewing of exerciſe, the body ſhould bee ſo often exerciſed, as there is a deſire to eate. For exerciſe ſtirres up and revives the heate which lies buried and hid in the body: For digeſtion cannot be well performed by a ſluggiſh heate; neither have we any benefit by the meate we eate, unleſſe wee uſe exerciſe before.

For whom ſtrong exerciſes are convenient.

The laſt part of exerciſe begun and performed according to reaſon, is named * *the ordering of the body*, which is performed by an indifferent rubbing, and drying of the members; that ſo the ſweat breaking forth, the filth of the body, and ſuch excrements lying under the skinne, may be allured and drawne out; and alſo that the members may be freed from ſtifneſſe and wearineſſe. At this time it is commonly uſed by ſuch as play at tennis.

* Ἀποθεραπεία.

But, as many and great commodities ariſe from exerciſe conveniently begunne and performed, ſo great harme proceeds of idleneſſe; for groſſe and vicious juyces heaped up in the body commonly produce crudities, obſtructions, ſtones both in the reines and bladder, the Goute, Apoplexie, and a thouſand other diſeaſes.

What diſcommodities proceed from idleneſſe.

Chap. XVI.

Of Sleepe and Watching.

That this our ſpeech of Sleepe and Watching, which we now intend, may be more plaine, we will briefely declare, what commoditie or diſcommoditie they bring, what time and what houre is convenient for both, what the manner of lying muſt bee, and the choiſe thereof; what the dreames in ſleeping, and what paines or heavineſſe and cheerefulneſſe after ſleepe may portend.

What ſleepe is.

Sleepe is nothing elſe than the reſt of the whole body, and the ceſſation of the Animall facultie from ſenſe and motion. Sleepe is cauſed, when the ſubſtance of the braine is poſſeſſed, and after ſome ſort overcome and dulled by a certaine vaporous, ſweete and delightſome humidity; or when the ſpirits almoſt exhauſt by performance of ſome labour, cannot any longer ſuſtaine the weight of the body, but cauſe reſt by a neceſſary conſequence, by which meanes nature may produce other from the meate by concoction turned into bloud.

The uſe of ſleepe.

Sleepe fitly taken much helpes the digeſtion of the parts, becauſe in the time of reſt, the heat, being the worker of all concoction, is carryed backe to them, together with the ſpirits. Neither doth ſleepe only give eaſe to the wearyed members, but alſo leſſens our cares and makes us to forget our labours.

Fit time for ſleepe and the nature of the night.

Sleepe on the day-time.

There ought to be a moderation of our nights ſleepe.

How to be knowne.

The night is a fit time to ſleepe and to take our reſt in, as inviting ſleepe by its moiſture, ſilence and darkneſſe. For the Heat and Spirits in the thick obſcurity of night, are driven in and retained in the center of the body; as on the contrary by the daily and as it were friendly and familiar light of the Sun, they are allured & drawne forth into the ſuperficies, and outward part of the body; from whence they leave ſleeping and begin to wake. Beſides alſo, which makes not a litle, to that opportunity and benefit which wee looke for from ſleepe, the night ſeaſon ſuffices for the worke of juſt and perfect concoction. Which is one reaſon amongſt many that ſleep on the day time may be hurtfull. For wee are wakened from our ſleepe by the heat and ſpirits called forth to the skinne either by the light, or noiſe on the day time, before that the concoction which was begun be finiſhed. But that ſleepe cannot but be light which comes without neceſſity of ſleeping. Wherefore the concoction being attempted, but not perfected, the ſtomacke is filled with crudities, diſtended with acide or ſoure belchings, and the braine troubled with groſſe vapours and excrementitious humidities. From whence proceeds paine and heavines of the head, and ſtore of cold diſeaſes. But although ſleepe on the night time be wholſome, yet it is fit, that it be reſtrained within the limits of an indifferent time. For that which exceeds hinders the evacuation of excrements both upwards and downewards: but in the meane time the heate which is neuer idle, drawes from them ſome portion or vapour into the veines, principall parts and habite of the body, to become matter for ſome diſeaſe. We muſt meaſure this time, not by the ſpace of houres, but by the finiſhing the worke of concoction, which is performed in ſome, ſooner than in other ſome. Yet that which is longeſt is perfected and done in ſeaven, or eight houres. The ventricle ſubſiding and falling into its ſelfe and its proper coats, and the urine tinctured yeallow, gives perfect judgment thereof. For on the contrary the extenſion of the ſtomacke, acide belching, paine of the head, and heavines of the whole body, ſhew that the concoction is unperfect.

What the forme and ſite of our body ought to be while we ſleep

The harme of lying on our backes.

Vpon our bellies.

In ſleeping we muſt have ſpeciall care of our lying downe, for firſt we muſt lye on our right ſide, that ſo the meat may fall into the bottome of our ſtomacke, which being fleſhy and leſſe membranous, is the hotter, and more powerfull to aſſimulate. Then a litle after we muſt turne upon our left ſide, that ſo the Liver with its Lobes, as with hands may on every ſide embrace the ventricle, and as fire put vnder a Kettle, haſten the concoction. Laſtly, towards morning it will not be unprofitable to turne againe upon our right ſide, that by this ſcituation the mouth of the ſtomacke being opened, the vapoures which ariſe from the elixation of the *Chylus* may have freer paſſage. Lying upon the backe is wholy to be avoided; for from hence the Reines are inflamed, the Stone is bred, Palſies, Convulſion, and all diſeaſes which have their originall from the defluxion into the ſpinall marrow, and to the Nerves taking beginning from thence. To lye upon the belly is not unprofitable for ſuch as have uſed to lye ſo, if they be not troubled with defluxions into the eyes; for ſo the humor will more eaſily flow into the part affected. But thus the worke of concoction is not a litle furthered, becauſe by that forme of lying, not onely the inward heate is contained and gathered together about the ventricle, but the encompaſſing warmeneſſe of the ſoft feathers of the bed, aides and aſſiſts it.

The conſideration of dreames.

Neither are the Dreames which we have in our ſleepe to be neglected, for by the diligent conſideration of theſe, the affections and ſuperfluous humors which have cheiſe power in the body are marvailouſly knowne. For thoſe who have raging Choler running up and downe their bodyes while they ſleepe, all things to them appeare bright, ſhining, fiery, burning, full of noyſe and contention. Thoſe who abound with Phlegme dreame of floods, ſnowes, ſhowers and inundations and falling from high places. Thoſe who are Melancholy dreame of gapings and gulfes in the earth, thicke and obſcure darkneſſe, ſmokes, caves, and all blacke and diſmall things. But thoſe whoſe bodyes abound in blood dreame of mariages, dances, embracings of women, feaſts, jeſts, laughter, of orchards and gardens; and to conclude, of all things pleaſant and ſplendent.

Alſo we muſt obſerve how the Patient doth after ſleepe, whether more lively and cheerefull, or more heavy, for by the opinion of ***Hippocrates,***

Cum labor à ſommo eſt, læthalem collige morbum:
Sin proſit ſomnus, nihil hinc læthale timendum eſt.

Aphor. 1. ſect. 2.

Paine ſleepe enſuing, an ill diſeaſe doth ſhow:
But if ſleepe profit bring, no harme from thence will flow.

And as ſleepe ſo watching, if it exceede meaſure, is hurtfull; for it hurts the temperature of the braine, weakens the ſenſes, waſtes the ſpirits, breeds crudities, heavineſſe of the head, falling away of the fleſh, and leaneneſſe over all the body, and to conclude, it makes ulcers more dry, and ſo conſequently rebellious, difficult to heale, and maligne. There are many other things may be ſpoken of ſleepe and watching, but theſe may ſuffice a Chirurgion.

CHAP. XVII.

Of Repletion, and Inanition, or Emptineſſe.

The kinds of Repletions or rather of Exceſſes.

THere are, to bee ſhort, two ſorts of Repletion, or of all exceſſe; one is of a ſimple qualitie, without any defluxion, or ſocietie of any humor, as appeares in diſtempers without matter: the other is of quantitie and maſſe, the body being diſtended with too much meate, or too great quantitie of humors; from whence proceed an infinite number of diſeaſes. They call the Repletion of meates, ſatietie or fulneſſe, and it is of two kinds; the one which is called * Repletion or Fulneſſe to the veſſels; the other * Repletion to the ſtrength.

*Repletio { ad vaſa / ad vires

Wee judge of ſatietie to the veſſels, by the diſtention and ſwelling of the veines and intrailes, as the ſtomacke. Wee call ſatietie to the ſtrength, when the body is loaded with more meates, than it can well beare. But alſo there is a double Repletion of humors. For either it is of ſome one humor, or of all the humors; they call this by a peculiar name *Plethora.* For *Galen* defines *Plethora* an equall exceſſe of all the humors. For if at any time he define a *Plethora* to be an exceſſe of bloud onely, then verily by the name of bloud, he underſtands an equall comprehenſion of the foure humors; as it is taught in Phyſicke ſchooles.

Gal. Meth. 13. *cap.* 6.

The Repletion which is cauſed by ſome one humor, is termed by *Galen* in the place before mentioned, *Cacochymia,* (that is, an evill juyce) whether the Repletion proceede of a Cholericke, Melancholicke, Phlegmaticke, or ſerous humor.

What *Cacochymia.*

Now Inanition, or evacuation is no other thing than the expulſion, or effuſion, of humors which are troubleſome, either in quantitie, or qualitie. Of evacuations, ſome are univerſall, which expell ſuperfluous humors from the whole body; ſuch are purging, vomiting, tranſpiration, ſweats, phlebotomie. Some particular which are performed onely to evacuate ſome part, as the braine by the noſe, palate, eyes, eares; the lungs by the weazon; the ſtomacke by vomite and ſtoole, the guts by ſtoole, the liver and the ſpleene by urine and ordure. Theſe evacuations are ſometimes performed by nature, freeing it ſelfe of that which is troubleſome to it; otherwhiles by the Art of the Phyſirion in imitation of nature.

The kinds of evacuation.

And againe, one of theſe is good and requiſite, when onely the humor which is hurtfull, either in quantitie or qualitie, is evacuated; The other not requiſite, or immoderate, when the profitable humors together with the unprofitable, are expelled.

The commodities of moderate ſcratching.

But what evacuations ſoever theſe be, they are performed and done, either by the ſcratching and rubbing of the skinne, as when a cholericke, ſalt, or ſerous humor, or ſome windineſſe lying betweene the skinne and the fleſh, cauſe itching. For by ſcratching the skinne, it gets paſſage out, which is manifeſt by the effluxe of a ſerous matter burning, or cauſing ſcabbs and ulcers, if the humor be ſomewhat groſſe, but inſenſible and not ſo manifeſt, if it be windineſſe, the skinne by that rubbing being rarefied, and the groſſe flatulency attenuated. Wherefore they doe ill who hinder their Patients from ſcratching, unleſſe they ſcratch ſo cruelly and hard, that there may bee danger, (by reaſon of the great heate and paine thereby cauſed) of ſome defluxion or falling downe of humors into the part.

The force of vomits.

Salivation.

The whole body is alſo purged by urines.

Or theſe evacuations are performed by much matter evacuated from an opened Bile, or running ulcer, a Fiſtula, or ſuch like ſores. Or by ſweats which are very good and healthfull, eſpecially in ſharpe diſeaſes, if they proceede from the whole body, and happen on the criticall dayes. By vomit, which often violently drawes theſe humors from the whole body, even from the utmoſt joints, which purging medicins could not evacuate, as wee may ſee in the Palſie, and Sciatica, or Hipgoute. By ſpitting, as in all who are ſuppurated either in the ſides or lungs. By Salivation, or a Flegmaticke fluxe by the mouth, as in thoſe who are troubled with the French Pockes. By ſneeſing and blowing the noſe; for by theſe the braine oppreſt with moiſture, diſburdeneth its ſelfe, whether it be done without, or with the helpe of ſternutatories and errhines; wherefore children, and ſuch as have ſomewhat moiſt braines purge themſelves often this way. By hicket and belching; for by theſe the windineſſe contained in the ſtomacke, is often expelled. By urine, for by this not onely Feavers, but which is more to bee admired, the French-Pockes hath often beene terminated and cured.

For there have beene ſome troubled with the Pockes, in whom a fluxe of the vicious and venenate humor could not by unctions of quickſilver be procured, either from the mouth, or belly; yet have beene wonderfully freed by aboundance of urine, both from danger of death and their diſeaſe. By bleeding; for nature hath often found a way for grievous diſeaſes, eſpecially in young bodies, by bleeding at the noſe, and by their courſes in women. By a fluxe, or laske, purgation, ſweats, inſenſible evacuation and tranſpiration; for ſo tumors, the matter being brought to ſuppuration, doe ſometimes vaniſh away and are diſſolved, both of their owne accord, as alſo by diſſolving, or diſcuſſing medicins. We doe the ſame by exerciſe, diet, hot-houſes, long ſleepe, waking, and ſhedding of teares. By ſucking, as with cupping glaſſes and horſe-leaches in wounds made by venemous bitings.

We muſt obſerve three things in every evacuation.

In all ſuch kinds of evacuations, wee muſt conſider three things, the quantity, quality, and manner of evacuation. As for an example, when an ***Empyema*** is opened, the matter which runnes out, ought to bee anſwerable in proportion to the purulent matter, which was contained in the capacity of the breaſts; otherwiſe, unleſſe all the matter bee emptied, there may happen a relapſe; the matter ſhould be white, ſoft, equall, and nothing ſtinking: Laſtly, you muſt let it forth not altogether, and at one time, but by little and little, and at ſeverall times, otherwiſe not a little quantitie of the ſpirits and heate doth flow out together, with the unprofitable matter, and ſo conſequently a diſſolution of all the powers.

Chap. XVIII.

Of the Perturbations, or Paſſions of the minde.

Why the Paſſions of the minde, are called Accidents.

Their force.

THe Perturbations, are commonly called the accidents of the minde, becauſe, as bodily accidents from the body, ſo may theſe be preſent and abſent from the minde, without the corruption of the ſubject. The knowledge of theſe muſt not be lightly paſſed over by the Chirurgion; for they ſtir up great troubles in the bodies, and yeeld occaſion of many & great diſeaſes; of which things, Ioy, Hope and Love, may give a apparent teſtimony. For by theſe motions the heate and ſpirits are ſometimes gently, ſometimes violently diffuſed over all the body, for the enjoying of the preſent, or hoped for good. For then the heart is dilated, as to embrace the thing beloved, and the face is died with a roſy and lively colour. For it is likely, that the facultie it ſelfe is ſtirred by the object, by whoſe power the heart it ſelfe is moved.

From whence they have their force.

The reaſon of Ioy.

For it is firſt neceſſary, before wee be moved by any Paſſions, that the ſenſes in their proper ſeates, in which they are ſeldome deceived, apprehend the objects, and ſtrait as meſſengers carrie them to the common ſenſe, which ſends their conceived formes to all the faculties. And then, that each facultie, as a Iudge may a freſh examine the whole matter, how it is, and conceive in the preſented objects ſome ſhew of good, or ill, to bee deſired, or ſhunned. For what man that was well in his wits, did ever fall into a laughter, unleſſe he formerly knew, or ſaw ſomewhat ſaid or done, which might yeeld occaſion of laughter? Therefore Ioy proceeds from the heart, for the thing cauſing mirth or joy, being conceived, the facultie moves the heart, which ſhaken and moved by the faculty which hath dominion over it, is dilated and opened, as ready to embrace the exhilarating object. But in the meane time by the force of that dilatation, it ſends forth much heate, and ſpirits together with the bloud into all the body. A great part of which comming to the face, dilates it, the forehead is ſmooth and plaine, the eyes looke bright, the cheekes become red, as died with Vermilion, the lips and mouth are drawen together, and made plaine and ſmoth; ſome have their cheekes dented with two little pits (which from the effects are called laughing cheekes)*because of the contraction or curling, which the muſcles ſuffer by reaſon of their fulneſſe of bloud and ſpirits, all which to be briefe is nothing but to laugh.

The effects of Ioy.

Ioy recreates and quickens all the faculties, ſtirres up the ſpirits, helpes concoction, makes the body to bee better likeing, and fattens it, the heate, bloud, and ſpirits flowing thither, and the nouriſhing dew or moiſture, watering and refreſhing all the members; from whence it is, that of all the Paſſions of the minde, this onely is profitable, ſo that it exceed not meaſure; for immoderate and unaccuſtomed joy, carries ſo violently the bloud and ſpirits from the heart, into the habit of the body, that ſodaine and unlookt for death enſues, by a ſpeedy decay of the ſtrength, the laſting fountaine of the vitall humour being exhauſted. Which thing principally happens to thoſe who are leſſe heartie, as women and oldmen.

Angers

Anger cauſeth the ſame effuſion of heate in us, but farre ſpeedier than joy; therefore the ſpirits and humors are ſo inflamed by it, that it often cauſes putrid feavers, eſpecially if the body abound with any ill humor.

Sorrow.

Sorrow, or griefe dries the body by a way quite contrary to that of anger, becauſe by this the heart is ſo ſtraitened, the heate being almoſt extinct, that the accuſtomed generation of ſpirits cannot be performed; and if any be generated, they cannot freely paſſe into the members with the bloud; wherefore the vitall facultie is weakened, the lively colour of the face withers and decaies, and the body waſtes away with a lingering conſumption.

Feare.

Feare in like ſort drawes in and calls backe the ſpirits, and not by little and little as in ſorrow, but ſodainely and violently; hereupon the face growes ſodainely pale, *Hippocrat.lib. 4.de morb.*

the extreame parts cold, all the body trembles or ſhakes, the belly in ſome is looſed, the voice as it were ſtaies in the jawes, the heart beate with a violent pulſation, becauſe it is almoſt oppreſt by the heate, ſtrangled by the plentie of bloud, and ſpirits abondantly ruſhing thither; The haire alſo ſtands upright, becauſe the heate and bloud are retired to the inner parts, and the utmoſt parts are more cold and drie than ſtone; by reaſon whereof the utmoſt ſkinne and the pores, in which the rootes of the haires are faſtened, are drawne together.

Shame.

Shame is a certaine affection mixed, as it were, of Anger and Feare; therefore if, in that conflict of, as it were, contending paſſions, Feare prevaile over Anger, the face waxeth pale, (the bloud flying backe to the heart;) and theſe or theſe Symptomes riſe, according to the vehemency of the contracted and abated heat. But if on the contrary, Anger get the dominion over Feare, the bloud runnes violently to the face, the eyes looke red, and ſometimes they even fome at the mouth.

Shameſaſtneſſe.

There is another kinde of ſhame, which the Latines call *Verecundia* (wee Shameſaſtneſſe) in which there is a certaine fluxe, and refluxe of the heate, and bloud firſt recoiling to the heart, then preſently rebounding from thence againe. But that motion is ſo gentle, that the heart thereby ſuffers no oppreſſion, nor defect of ſpirits; wherefore no accidents worthy to be ſpoken of, ariſe from hence: this affect is familiar to young maides and boyes; who if they bluſh for a fault committed unawares, or through careleſneſſe, it is thought an argument of a vertuous and good diſpoſition.

An agonie.

But an agony, which is a mixt paſſion of a ſtrong feare, and vehement anger, involves the heart in the danger of both motions; wherefore by this paſſion, the vitall facultie is brought into very great danger. To theſe ſixe Paſſions of the minde, all other may be revoked, as Hatred and Diſcord to Anger: Mirth and Boaſting, to Ioy; Terrors, Frights and Swoundings, to Feare; Envy, Deſpaire and Mourning, to Sorrow.

By theſe it is evident, how much the paſſions of the minde can prevaile, to alter and overthow the ſtate of the body; and that by no other meanes, than that by the compreſſion and dilatation of the heart, they diffuſe and contract the ſpirits bloud, and heate; from whence happens the diſſipation, or oppreſſions of theſe ſpirits.

Why the firſt ſignes of paſſions of the minde appeare in the face.

The ſignes of theſe Symptomes quickly ſhew themſelves in the face; the heart, by reaſon of the thinneſſe of the ſkinne in that part, as it were painting forth the notes of its affections. And certainely the face is a part ſo fit to diſcloſe all the affections of the inward parts, that by it you may manifeſtly know an old man from a young, a woman from a man, a temperate perſon from an untemperate, an Ethiopian from an Indian, a Frenchman from a Spaniard, a ſad man from a merry, a ſound from a ſicke, a living from a dead. Wherefore many affirme that the manners, and thoſe things which we keepe ſecret and hid in our hearts, may be underſtood by the face and countenance.

The uſe of paſſions of the minde.

Now wee have declared what commoditie and diſcommoditie may redound to man from theſe forementioned paſſions, and have ſhewed that anger is profitable to none, unleſſe by chance to ſome dull by reaſon of idleneſſe, or oppreſt with ſome cold, clammy and phlegmaticke humor; and feare convenient for none, unleſſe peradventure for ſuch as are brought into manifeſt and extreme danger of their life by ſome extraordinary ſweat, immoderate bleeding, or the like unbridled evacuation, Wherefore it behoves a wiſe Chirurgion to have a care, leſt he inconſiderately put any Patient committed to his charge into any of theſe paſſions, unleſſe there bee ſome neceſſitie thereof, by reaſon of any of the forementioned occaſions.

Chap. XIX.

Of things againſt Nature, and firſt of the Cauſe of a Diſeaſe.

What things againſt nature are.

HAving intreated of things naturall, and not naturall, now it remaines wee ſpeake of things (which are called) againſt nature, becauſe that they are ſuch as are apt to weaken and corrupt the ſtate of our body. And they bee three in number; The cauſe of a diſeaſe, a Diſeaſe, and a Symptome. The cauſe of a diſeaſe is an affect againſt nature, which cauſes the diſeaſe. Which is divided into Internall and Externall. The Externall, originall or primitive comes from ſome other place, and outwardly into the body, ſuch be meates of ill nouriſhment, and ſuch weapons and hoſtilely wound the body.

What, and how many the cauſes of diſeaſes be. The primitive cauſe.

Internall antecedent.

The Internall have their eſſence and ſeate in the body, and are ſubdivided into antecedent and conjunct. That is called an antecedent cauſe, which as yet doth not actually make a diſeaſe, but goes neare to cauſe one; ſo humors copiouſly flowing, or ready to flow into any part, are the antecedent cauſes of diſeaſes; The conjunct cauſe is that which actually cauſes the diſeaſe, and is ſo immediately joined in affinitie to the diſeaſe, that the diſeaſe being preſent, it is preſent, and being abſent, it is abſent.

Internall conjunct.

Againe, of all ſuch cauſes, ſome are borne together with us, as the over-great quantitie, and maligne qualitie of both the ſeedes, and the menſtruous bloud, from diſeaſed Parents are cauſes of many diſeaſes, and ſpecially of thoſe which are called Hereditary.

Other happen to us after wee bee borne, by our diet and manner of life, a ſtroke, fall, or ſuch other like. Thoſe which bee bred with us, cannot be wholy avoided or amended, but ſome of the other may be avoided, as a ſtroke and fall; ſome not, as thoſe which neceſſarily enter into our body, as Aire, Meate, Drinke, and the like.

The congenit, or inevitable cauſe of death.

But if any will reckon up amongſt the internall, inherent, and inevitable cauſes, the daily, nay hourely diſſipation of the radicall moiſture, which the naturall heate continually preyes upon; I doe not gainesay it, no more than that diviſion of cauſes celebrated and received of Philoſophers, divided into Materiall, Formall, Efficient, and Finall; for ſuch a curious contemplation belongs not to a Chirurgion, whom I onely intend plainely to inſtruct. Wherefore that wee have written may ſuffice him.

Chap. XX.

Of a Diſeaſe.

What a diſeaſe is, and how various.

A Diſeaſe is an affect againſt nature, principally and by it ſelfe, hurting and depraving the action of the part in which it reſides. The diviſion of a Diſeaſe is threefold; Diſtemperature, ill Conformation, and the Solution of Continuity.

A Diſtemperature.

Diſtemperature is a diſeaſe of the ſimular parts diſſenting, and changed from their proper and native temper. That digreſſion from the native temper, happens two wayes; either by a ſimple diſtemperature from the exceſſe of one qualitie; and this is fourefold; Hot, Cold, Moiſt, and Drie; or by a compound diſtemperature, by the exceſſe of two qualities, which alſo is fourefold, Hot and Moiſt; Hot and Drie, Cold and Moiſt; Cold and Drie. Againe, every diſtemper is the fault of one ſimple and ſingle qualitie, as an inflammation; or hath ſome vicious humors joyned with it, as a Phlegmon; Againe, a Diſtemperature is either equall, as in a *Sphacele*; or unequall, as in a *Phlegmon*, beginning, or increaſing.

Ill conformation.

Ill Conformity is a fault of the organicall parts, whoſe compoſure is thereby depraved. This hath foure kindes; the firſt is when the figure of the part is faultie, either by nature or accident, or ſome cavitie aboliſhed, as if a part, which nature would have hollow for ſome certaine uſe, doe grow or cloſe up; or laſtly, if they be rough, or ſmooth otherwiſe than they ſhould, as if that part which ſhould be rough, be ſmooth, or the contrary. Another is in the magnitude of the part increaſed, or diminiſhed contrarie to nature. The third is in the number of the parts, increaſed, or diminiſhed; as if a hand have but foure or elſe ſixe fingers. The fourth is in the ſite and mutuall connexion of the parts, as if the parts which ſhould be naturally united and continued bee pluckt aſunder, as happens in luxations; or the contrary.

Solution of Continuitie.

The third generall kinde of diſeaſe, is the ſolution of continuitie, a diſeaſe common, both to the ſimular and organicall parts, acquiring diverſitie of names, acccording to the varietie of the parts in which it reſides.

CHAP. XXI.

Of a Symptome.

What a Symptome is.

WE doe not in this place take the word Symptome in the moſt generall acceptation, for every change or accident which happens to man beſides his owne nature; but more reſervedly and ſpecially, onely for that change which the diſeaſe brings, and which followes the diſeaſe, as a ſhadow doth the body.

Three kindes thereof.

There be three kindes of a Symptome properly taken. The firſt is, when the action is hurt; I ſay hurt, becauſe it is either aboliſhed, weakened, or depraved; ſo blindneſſe is a deprivation, or aboliſhing of the action of ſeeing; dulneſſe of ſight, is a diminution, or weakening thereof; and a ſuffuſion, ſuch as happens at the beginning of a Cataract, when they thinke flies, haires, and ſuch like bodies flie too and fro before their eyes, is a depravation of the ſight.

The ſecond is a ſimple affect of the body, and a full fault of the habite thereof being changed, happening by the mutation of ſome qualities, ſuch is the changing of the native colour into a red by a Phlegmon, and into a livide and blacke by a Gangrene; ſuch is the filthy ſtench the noſe affected with a *Polypus* ſends forth; the bitter taſte, in ſuch as have the Iaundiſe; and the rough and rugged ſkinne in them which are Leprous.

The third is the fault of the overmuch retention of excrements which ſhould be expelled, and expulſion of ſuch as ſhould be retained; for the evacuation of an humor profitable both in quantitie and qualitie, is againſt nature, as bleeding in a body not full of ill humors, nor Plethoricke; and alſo the retention of things hurtfull in ſubſtance, quantitie and qualitie, as the Courſes in women, the urine, and the ſtone in the bladder.

CHAP. XXII.

Of Indications.

What an Indication is.

THe knowledge and exerciſe of Indications befits that Chirurgion, whom no blinde raſhneſſe of fortune, but reaſon; no chance, but counſell directs in the undertaking and performing the workes of his Art. For an Indication is a certaine ſafe and ſhort way, which leades the Phyſition, as by the hand, to the attainement of his purpoſed end, of preſerving the ſound, or curing the ſicke.

Sec. method. Cap.7. lib. de opt. ſecta, Cap.11.

For *Galen* doth define an Indication to be a certaine inſinuation of what is to be done, or a quick & judicious apprehenſion of that which may profit or hurt. And as Faulconers,

ners, Mariners, Plowmen, Soldiers, & all manner of Artizans, have their peculiar termes and words, which are neither knowne, nor uſed by the vulgar; ſo this word Indication is proper and peculiar to Phiſitions and Chirurgeons, as a Terme of Arte not vulgar; by conſideration of which, as by ſome ſigne, or ſecret token, they are admoniſhed what is to be done to reſtore health, or repell an imminent danger.

The kinds of Indications.

There are three prime and principall kinds of Indications, every of which is ſubdivided into many other. The firſt is from things naturall. The ſecond from theſe things which are termed not naturall. The third from thoſe things which are contrary to nature. Things naturall ſhew they muſt be preſerved by their like, and in the compaſſe of theſe are contained all the Indications which are drawne from the nature of the Patient, that is, from his ſtrength, temper, age, ſexe, habit, cuſtome, diet.

Lib. 9. Method. cap. 9.

Things not naturall may be doubted as uncertaine, for one while they indicate the ſame things with things naturall, that is, they coindicate with the ſtrength, temper and the reſt; otherwhiles they conſent with things againſt nature, that is, they coindicate with the diſeaſe. Wherfore *Galen* when he ſaith, that Indications are drawn from three things; The diſeaſe; The nature of the Patient, and the encompaſſing aire, by propoſing the familiar example of the aire, hee would have us to underſtand the other things not naturall; becauſe wee may ſhun, or embrace them more or leſſe as we will our ſelves, but we muſt, whether we will or no, endure the preſent ſtate of the aire. Therefore the aire indicates ſomething to us, or rather coindicates; for if it nouriſh the diſeaſe, as conſpiring with it, it will indicate the ſame that the diſeaſe, that is, that it muſt be preſerved in the ſame ſtate.

Indications drawne from things naturall.

Things contrary to nature indicate they muſt be taken away by their contraries; therefore that we may more accurately and fully handle all the Indications drawne from things naturall, we muſt note, that ſome of theſe are concerning the ſtrength of the Patient, by care to preſerve which, we are often compelled for a time to forſake the cure of the proper diſeaſe: for ſo a great ſhaking happening at the beginning of an ague or feaver, we are often forced to give ſuſtenance to the Patient, to ſtrengthen the powers ſhaken by the vehemency of the ſhaking, which thing notwithſtanding lengthens both the generall and particular fitts of the ague. Other pertaine to the temper, other reſpect the habite, if the Patient be ſlender, if fat, if well fleſht, if of a rare, or denſe conſtitution of body. Other reſpect the condition of the part affected in ſubſtance, conſiſtence, ſoftneſſe, hardneſſe, quicke or dull ſenſe, forme, figure, magnitude, ſite, connexion, principallity, ſervice, function and uſe. From all theſe, as from notes the skilfull Chirurgion will draw Indications according to the time and part affected: for the ſame things are not fit for ſore eyes, which were convenient for the eares, neither doth a Phlegmon in the jawes and throat admit the ſame forme of cure, as it doth in other parts of the body. For none can there outwardly apply repercuſſives, without preſent danger of ſuffocation. So there is no uſe of repercuſſives in defluxions of thoſe parts which in ſite are neere the principall. Neither muſt thou cure a wounded Nerve and Muſcle, after one manner. The temperature of a part, as Moiſture, alwayes indicates its preſervation, although the diſeaſe be moiſt and give Indication of drying, as an ulcer. The principallity of a part alwayes inſinuates an Indication of aſtringent things, although the diſeaſe require diſſolving, as an Obſtruction of the Liver; for otherwiſe unleſſe you mixe aſtringent things with diſſolving, you will ſo diſſolve the ſtrength of the part, that hereafter it cannot ſuffice for ſanguification. If the texture of a part be rare, it ſhewes it is leſſe apt, or prone to obſtruction; if denſe, it is more abnoxious to that diſeaſe; hence it is that the Liver is oftener obſtructed than the Spleene. If the part be ſcituate more deepe, or remote, it indicates the medicines muſt be more vigorous and liquid, that they may ſend their force ſo farre. The ſenſibleneſſe, or quicke-ſenſe of the part, gives Iudication of milder medicines, than paradventur the ſignes, or notes of a great diſeaſe require. For the Phiſition which applies things equally ſharpe to the Horny tunicle of the eye being ulcerated, and to the Legge, muſt needs be accounted either cruell, or ignorant. Each ſexe and Age hath its Indications, for ſome diſeaſes are curable in youth, which we muſt not hope to cure in old age; for hoarſeneſſe and great diſtillations in very old men, admit no digeſtion, as *Hippocrates* ſaith;

What the conditions of the parts affected do indicate.

Indications from the ages.

Aphor. 40. li. 2.

Nunquam decrepitus Branchum coquit, atque Coryzam.
The feeble Sire, for age that hardly goes,
Ne're well digeſts, the hurtfull Rheume or poſe.

Moreover according to his decree the diſeaſes of the Reines, and whatſoever paines moleſt the bladder, are difficultly healed in old men; and alſo reaſon perſwades that a Quartaine admits no cure in Winter, and ſcarſe a Quotidian, and ulcers in like manner are more hard to heale in Winter; that hence we may underſtand certaine Indications to be drawne from time; and to increaſe the credit of the variety and certainty of Indications, ſome certaine time, and ſeaſons in thoſe times command us to make choiſe of Medicines; for as *Hipocrates* teſtifies;

Aphor.6. ſect.6.

Aphor.5. ſect.4.

Ad Canis ardorem facilis purgatio non eſt.
In Dogdayes heat it is not good,
By purging for to clenſe the blood.

Neither ſhalt thou ſo well preſcribe a ſlender diet in Winter, as in the Spring, for the aire hath its Indications. For experience teaches us, that wounds of the head are farre more difficultly and hardly cured, at Rome, Naples, and Rochell in Xantoigne. But the times of diſeaſes yeeld the principall Indications, for ſome Medicines are onely to be uſed at the beginning and end of diſeaſes, others at the encreaſe and vigour of the diſeaſe. We muſt not contemne thoſe Indications which are drawn from the vocation of life, and manner of Diet; for you muſt otherwiſe deale with the painfull Husbandman (when he is your Patient) which leades his life ſparingly and hardly, than with the Citizen who lives daintily and idlely. To this manner of life and Diet may be referred a certaine ſecret and occult property, by which many are not onely ready to vomite at eating of ſome meats, but tremble over all their bodyes when they heare them but ſpoken of. I knew a prime Nobleman of the French Nobility, who was ſo perplext at the ſerving in of an Eele to the Table, at the middſt of dinner & amongſt his friends, that he fell into a ſwound, all his powers failing him. *Galen* in his booke *de Conſuetudine* tells that *Arius* the *Peripateticke* died ſodainly, becauſe compelled by the adviſe of thoſe Phyſitions he uſed, he dranke a great draught of cold water in the intollerable heat of a Feaver. For no other reaſon ſaith *Galen*, than that, becauſe he knowing he had naturally a cold ſtomacke from his childhood, perpetually abſtained from cold water.

From our Diet.

Hatred ariſing from ſecret properties.

Indications taken from things againſt nature.

For as much as belongs to Indications taken from things againſt nature; the Length and depth of a wound or ulcer indicates one way; the figure cornered, round, equall and ſmooth, unequall and rough, with a hollowneſſe ſtraight or winding, indicate otherwiſe; the ſite right, left, upper, lower in an other manner, and otherwiſe the force and violence of antecedent and conjunct cauſes. For oftentimes the condition of the cauſe indicates contrary to the diſeaſe, as when abundance of cold and groſſe humors cauſe and nouriſh a Feaver. So alſo a Symptome often indicates contrary to the diſeaſe, in which contradiction, that Indication muſt be moſt eſteemed, which doth moſt urge; as for example ſake, if ſwounding happen in a Feaver, the feaveriſh burning ſhall not hinder us from giving wine to the Patient.

Wherefore theſe Indications are the Principalleſt and moſt noble which leade us, as by the hand, to doe theſe things which pertaine to the cure, prevention and mitigating of diſeaſes. But if any object, that ſo curious a ſearch of ſo many Indications is to no purpoſe, becauſe there are many Chirurgions, which ſetting onely one before their eyes, which is drawne from the Eſſence of the diſeaſe, have the report and fame of skillfull Chirurgions, in the opinion of the vulgar; but let him know that it doth not therefore follow, that, this indication is ſufficient for the cure of all diſeaſes; for we doe not alwayes follow that which the Eſſence of the diſeaſe doth indicate to be done. But chiefly then, where none of the fore-recited Indications doth reſiſt or gaineſay; you may underſtand this by the example of a *Plethora*, which by the Indication drawne from the Eſſence of the thing requires Phlebotomy; yet who

We do not alwayes follow the Indication which is from the diſeaſe.

is it, that will draw blood from a child of three monethes old? Beſides, ſuch an Indication is not artificiall but common to the Chirurgion with the common people. For who is it that is ignorant, that contraries are the remedies of contraries? and that broken bones muſt be united by joyning them together? but how it muſt be performed and done, this is of Arte and peculiar to a Chirurgion, and not knowne to the vulgar. Which the Indications drawn from thoſe fountaines we pointed at before, aboundantly teaches, which, as by certaine limits of circumſtances, encompaſſe the Indication which is taken from the Eſſence of the diſeaſe, leſt any ſhould thinke, we muſt truſt to that onely. For there is ſome great and principall matter in it, but not all. For ſo the meaneſt of the common people is not ignorant, that the ſolution of continuity is to be cured by repairing that which is loſt. But in what parts we may hope for reſtitution of the loſt ſubſtance, and in which not, is the part of a skilfull Chirurgion to know and pronounce. Wherefore hee will not vainly beſtow his labour to cure the Nervous part of the *Diaphragma*, or Midriffe being wounded, or the Heart, ſmall Gutts, Lungs, Liver, Stomacke, braine or bladder; and that, I may ſpeake in a word, Emperickes are not much more skilfull than the common people, although they do ſo much extoll themſelves above others by the name of experience. For although experience be another inſtrument to find out things with reaſon, yet without reaſon, it will never teach, what the ſubſtance of the part in which the diſeaſe lyes, may be; or what the action, uſe, ſite, connexion, from whence ſpeciall and proper Indications are drawne; With which the Chirurgion being provided and inſtructed ſhall not onely know by what meanes to finde out a remedye, but alſo, leſt he may ſeeme to mocke any with vaine promiſes, he ſhall diſcerne what diſeaſes are uncureable, and therefore not to be medled withall.

In what parts we cannot hope for reſtoring of ſolution of continuity.

Exherience without reaſon, is like a blind man without a guide.

But implicite, or intricate diſeaſes require each to be cured in their ſeverall order, except ſome one of them be deſperate, or ſo urge and preſſe that the Phyſition think it neceſſary after a prepoſterous order, to begin with it, although often he be forced to make ſome one of theſe diſeaſes incureable, or give occaſion of cauſing ſome new one, into which ſtraits we are neceſſarily compelled to fall, when, (for example) we determine to pull, or take away ſome extraneous body; for the performance whereof we are compelled to enlarge the wound. So we are forced by neceſſitie to open the necke of the bladder, (that ſo we may draw forth the ſtone therein contained) with a wound which often degenerates into an uncurable Fiſtula. For that diſeaſe which threatens danger of preſent death is of ſuch moment, that to ſhun that, it may be counted a ſmal matter, and commodious for the ſicke to bring in other diſeaſes, though uncureable. For if a convulſion happen by pricking a Nerve which we cannot heale by any remedies, then by cutting the Nerve aſunder wee end the convulſion, but deprive the part into which that Nerve did goe, of the uſe of ſome voluntary motion. So if in any great joynt there happen a Luxation with a wound, becauſe there is danger of convulſion by trying to reſtore and ſet right the Luxated part, wee are forcte for ſhunning thereof, to attend the wound onely, and in the meane time to let alone the Luxation. Otherwiſe in implicite diſeaſes if there be nothing which may urge, or call us from the ordinary cure, we muſt obſerve this order, that beginning with that affect, which hinders the cure of the principall diſeaſe, we proſecute the reſt in the ſame and their proper order, untill all the diſeaſes being overcome we ſhall reſtore the part affected to its integrity. Therefore let us take for an example, an ulcer in the Leg, a *Varix* (or big ſwollen veine) and a Phlegmonous tumor round about it; and laſtly, a body wholy plethoricke and filled with ill humors; order and reaſon require this, that uſing the adviſe of ſome learned Phyſition we preſcribe a convenient diet, and by what meanes we may, bring him to an equality by purging and blood-letting, and then we will ſcarifie in divers places the part where it is moſt ſwollen, then preſently apply Leaches that ſo we may free it from the burden of the conjunct matter; then uſe Cauteryes to helpe the corruption of the bone, and in the meane time change the circular figure of the ulcer into an ovall, or triangular; then at the length we will undertake the cutting of the *Varix*, and cure the ulcer which remaines according to Arte, and ſo at the length cicatrize it. In all this whole time the Patient ſhall neither walke, nor ſtand, nor ſit, but lye quietly, having his Leg orderly and decently rowled up. But if

Indications in implicite diſeaſes.

An example of Indications in implicite diſeaſes.

What we muſt do when the temper of the part is different from the temper of the whole body.

An artificiall conjecture is of much force in Indications.

if (as it often happens) the temper of the hurt part, be different from the temper of the whole body, the manner of curing muſt be ſo tempered, that we increaſe the Doſis of hot or Cold medicines, according to the ratable proportion of the Indications requiring this, or that. Therefore imagine the part ulcerated to be ſuch, as that it is two degrees dryer than the juſt temper; but the whole body to exceed the ſame temper in one degree of humidity: reaſon and Arte will require, that the medicine applyed to the ulcer be dryer by one degree than that which the part would otherwiſe require if it were temperate; but on the contrary let us ſuppoſe thus. The whole body to be one degree more moiſt than the temper requires, & the ulcerated part to be one degree dryer, truly in this caſe the medicine that is applyed to the ulcer by reaſon of the part it ſelfe, ſhall not be encreaſed in dryneſſe, but wholy compoſed and tempered to the Indication of the ulcer; becauſe the force of the moiſture exceeding in the like degree, doth counterpoiſe the ſuperfluous degree of dryneſſe. But it is more eaſie by an artificiall conjecture to determine of all ſuch things, than by any rules or precepts.

Indication from ſimilitude.

Indication of a ſubtle device.

Examples.

To theſe ſo many and various Indications, I thinke good to add two other; the One from ſimilitude; the Other of a certaine crafty device, and as the latter Phyſitions terme it, of a certaine ſubtile ſtratageme. We draw Indication from ſimilitude, in diſeaſes which newly ſpring up and ariſe, as which cannot be cured by Indications drawne from their contraries, as long as their Eſſence is unknowne and hid; wherfore they thinke it neceſſary to cure them by a way and Arte like thoſe diſeaſes, with which they ſeeme to have an agreeing ſimilitude of Symptomes and Accidents; Our Anceſtors did the ſame in curing the French Pockes, at the firſt beginning thereof, as long as they aſſimulated the cure to that of the Leproſie, by reaſon of that affinity, which both the diſeaſes ſeeme to have. But we follow crafty devices and ſubtile counſells, when the Eſſence of the diſeaſe wee meet with is wholy ſecret and hid, either becauſe it is altogether of a hidden and ſecret nature, and which cannot be unfolded by manifeſt qualities, or elſe reſides in a ſubject which is not ſufficiently knowne to us, nor of a Phyſicall contemplation, as the Minde. For then we being deſtitute of Indications taken from the nature of the thing, are compelled to turne our cogitations to impoſtures and crafty counſells; and they ſay this Arte and Craft is of cheiſe uſe in Melancholy affects and fictions, which are often more monſtrous and deformed than the Chimera ſo much mentioned in the fables of the Ancients; to which purpoſe, I will not thinke much to recite two Examples. A certaine man troubled with a Melancholike diſeaſe, I know not by what errour of opinion, had ſtrongly perſwaded himſelf that he was without a head; the Phyſitions omitted nothing, by which they might hope to take this madd opinion out of his minde. But when they had in vaine tryed all medicines, at length they deviſed this crafty, but profitable device, they faſtened and put upon his head a moſt heavy helmet, that ſo by the paine and trouble of his head nodding and drawne downe by that weight, he might be admoniſhed of his error.

A Phyſition ſhould be of a quicke apprehenſion.

It is reported, another moleſted by the obſcurity and darkneſſe of the ſame diſeaſe, did verily beleeve, that he had hornes upon his head; neither could he be drawne or diverted from that abſurd and monſtrous opinion, untill that binding up his eyes, they miſerablely bruiſed and ſcratched his forehead with the bony roughneſſe of the lower parts of an oxes hornes, that ſo he begun to beleeve by the painefull drawing of the blood that ran downe his face, that thoſe bloody hornes, were forciblely plucked from him. Ingenious Chirurgions in imitation of theſe examples may in like caſes doe the like. For that caſe requires a man of a quicke apprehenſion and advice, who may give manifeſt proofe of his diligence and skill by medicinall ſtratagems, as who forthwith can politikly device ſtratagems of divers ſorts.

Indications indicative.

Coindicative.

Repugnant.

But, now comming to the end of this our tract of Indications, we muſt cheifly and principally obſerve; That of Indications ſome are Indicative; which abſolutely and of themſelves command this to be done; other coindicative, which indicate the ſame with the Indicative, and joyntly ſhew it to be done, but in ſome ſort ſecundarily and not primitively; ſome are repugnant, which of themſelves and their owne nature perſwade quite contrary to that the indicative primitively did; or which diſſwade us from doing that, to performe which the indicative did perſwade us; other correpugnant, which give their voyce after the ſame forme and manner with the repugnant againſt the indicative, as the coindicative conſent to and maintaine them, Let this ſerve for an example of them all. **Correpugnant**

A *Plethora*, or plenitude of humors of its owne nature, requires and indicates bloodletting, the Spring-time perſwades and coindicates the ſame, but to this counſell is quite oppoſite and repugnant, a weake faculty, and childhood is correpugnant.

Wherefore theſe foure muſt be diligently waighed and conſidered when we deliberate what is to be done, and we muſt rather follow that which the indicative, or repugnant ſhew and declare, as what the diſeaſe and ſtrength of the Patient require, than that which the coindicative, or correpugnant ſhall perſwade, becauſe they have a weaker and but ſecundary power of indicating, and not eſſentiall and primitive. But becauſe the kinds of Indications are ſo many and divers, therfore that the knowledge of them may be more perſpicuous and leſſe confuſed, I have thought good to deſcribe and diſtinguiſh them by this following ſcheme.

A Table of Indications.

- An Indication is a certaine plaine and compendious way which leades the Chirurgion to a certaine, determinate and propoſed end for the cure of the preſent diſeaſe; of which there are 3. kinds,
  - The firſt is drawne from things natural which indicate their preſervation by their like; of this kind are many other which are drawne, either
    - From the ſtrength and faculties of the patient.
      - For whoſe preſervation, oftentimes the proper cure of the diſeaſe muſt be neglected; for where theſe faile, it is impoſſible the Chirurgion ſhould performe what he deſires and expects.
    - From the tēperament, as if the Patient ſhall be--
      - Sanguine,
      - Cholericke,
      - Flegmaticke
      - Melancholicke
        - Of preſervatiō of which the Chirurgion muſt have care, and if they ſwarve from equallitie, to reduce them to that which formerly they naturally were.
    - From the habite of the body, as the patient ſhall be
      - Dainty and delicate,
      - Slender and weake.
      - Low of ſtature.
      - Rare, or elſe denſe and compacte.
    - From the native condition of the hurt or affected part, in which we cōſider, either
      - The ſubſtance therof, as for as much as it is ſimular, we conſider whether it be hot, cold, moiſt, dry, or as it is organicall, and then whether it be a principall and noble part, or a ſubordinate and ignoble part.
      - Or, the ſenſe whether quicke, or dull, by reaſon whereof the eye cannot endure ſuch ſharpe & acride medicines, as ſimple fleſh can.
      - Or the forme, figure, magnitude, number, ſite, connexion, action, uſe.
    - From the Age, for each age yeelds his peculiar Indications, hence you may obſerve moſt diſeaſes to be incureable in old men, which are eaſily cured in yong, others which in youth admit of no cure, unleſſe by the change of age and th'enſuing temperament.
    - From Sexe, for medicines work upon weomen farre more eaſily than upon men.
    - From the time of the yeare, for ſome meats and medicines are fit in Winter, ſome in Summer.
    - From the Region, for as there are diverſities of ſituations and habits of places, ſo alſo there are motions of humors, and manners of diſeaſes: hence it is that wounds on the head at Paris, & ſore ſhinns at Avignion are more difficult to be cured.
    - From the times of diſeaſes, for ſome things in the beginings, others in the encreaſe, ſtate and declining of the diſeaſe, are more convenient.
    - From the manner of diet, for this, as the proper temper, muſt be preſerved. Wherefore ſuch muſt be fed otherwiſe who live daintily, than thoſe who leade their lives ſparingly and hardly. Hereunto adde certaine peculiar natures, which by a certaine hidden property are offended at this, or that kinde of meate. For there are ſome which not onely, cannot concoct Ptiſane, Apples, Soles, Pertrige, Water and ſuch like, but can ſcarſe behold them without Nauſeouſnes.
  - The ſecond is drawne from things not naturall, which one while indicate their preſervation by their like, another while their change by their contraries; for ſo
    - If the Aire, have as it were conſpired with the diſeaſe by a certaine ſimilitude of qualities to the deſtruction of the Patient, it muſt be corrected by its contraries according to Arte.
    - But if by the diſagreement of qualities it reſiſt the diſeaſe, it muſt be kept in the ſame temper.
  - The third from things contrary to nature which ſhew they muſt be taken away by the uſe of their contraries, as
    - The diſeaſe, the Indication being drawne from theſe
      - The greatneſſe
      - The complication or commixtion with others ſo
        - In implicite, or mixed diſeaſes we may draw Indications from theſe 3. heades,
          - From that which is moſt urgent
          - From the cauſe
          - and
          - From that, without which the diſeaſe can not be taken away
            - ſuch are
              - Bitterneſſe of paine, a defluxion into a part, a Varix, or bigge ſwollen veine, a diſtemperature if they be joyned with a diſeaſe.
    - Cauſe of the diſeaſe
    - Symptomes
      - which two oftē indicate & require medicines contrary to the diſeaſe.

Chap. XXIII.

Of certaine wonderfull and extravagant wayes of Curing diſeaſes.

AS Monſters ſometimes happen in nature, ſo alſo in diſeaſes, and in the events and cures of diſeaſes. I underſtand by monſters certaine marvellous ſucceſſes in diſeaſes, or certaine wayes of curing them, which ſwarve from Arte, and happen beſides reaſon, nature, and common uſe.

Monſtrous diſeaſes.

Alexander ab Alexandro, and *Peter Gilius* tell, that in Apulia a part of Italy, they have a certaine kind of Spider very frequent, the natives call it *Tarentula*, *Petrus Rhodius* calls it *Phalangium*; The Inhabitants finde theſe Spiders in the firſt heate of Summer ſo venenate and deadly, that whomſoever they touch with their virulent biting, he preſently, without he have ſpeedy remedy, deprived of all ſenſe and motion falls downe, or certainely if he eſcape the danger of death, he leades the remnant of his life in madneſſe. Experience hath found a remedy by Muſicke for this ſo ſpeedy and deadly a diſeaſe; Wherefore as ſoone as they can they fetch Fidlers and Pipers of divers kinds, who by playing and piping may make Muſicke, at the hearing whereof, he which was fallen downe by reaſon of the venemous bite, riſes cheerfully and dances ſo long to their meaſures and tunes, untill by the painfull & continued ſhaking and agitation of the whole body, all the malignity is diſſipated by tranſpiration and ſweates.

The wonderfull force of the bite of a certaine Spider.

Muſicke the remidy thereof.

Alexander adds that it happened once in his ſight, that the Muſitions their winde & hands failing them ceaſed playing, and then the Danſer preſently fell downe as if hee had beene dead; But by and by the Muſicke beginning anew, he riſe up againe and continued his danſing till the perfect diſſipation of the venome. And that it hath happened beſides, that one not ſo perfectly healed, certaine reliques of the diſeaſe yet remaining, when a long time after he heard by chance a noiſe of Muſitions, he preſently fell a leaping and danſing, neither could he be made to leave before he was perfectly cured.

Some affirme according to the opinion of *Aſclepiades*, that ſuch as are Franticke are much helped with a ſweet and Muſicall harmony. *Theophraſtus* and *Aulus Gellius* ſay that the paine of the Goute and Sciatica are taken away by Muſicke. And the Sacred Scripture teſtifies, that *David* was wont by the ſweet ſound of the Harpe to refreſh and eaſe King *Saul* when he was miſerablely tormented by his evill ſpirit. *Herodotus* in *Clio* tells, that *Cræſus* the King of Lydia had a Sonne, which of a long time could not ſpeake, and when hee came to mans eſtate was accounted dumbe: but when an Enemie with his drawne ſword invaded his father (overcome in a great fight, and the City being take in which hee was) not knowing that hee was the King, the young man opened his mouth endeavoring to cry out, and with that ſtriving and forcing of the Spirit hee broke the bonds and hinderances of his tongue, and ſpoke plainely and Articulately, crying out to the Enemie that hee ſhould not kill King *Cræſus*. So both the Enemie withheld his ſword, and the King had his life, and his Sonne had his ſpeech alwayes after. *Plutarch* in his booke, Of the benefit to be received from our Enemies, tells that a Theſſalian called *Proteus*, had a certaine inveterate and incurable ulcer in a certaine part of his body, which could not be healed, before hee received a wound in a conflict in the ſame place, and by that meanes the cure being begun afreſh, the wound and ulcer were both healed.

Muſicke gives eaſe to paine.

A ſtrong perturbation of the minde helps by moving the ſpirits.

Quintus Fabius Maximus, as *Livye* writes, was long and very ſicke of a quartaine Ague, neither could have wiſhed ſucceſſe from medicines adminiſtred according to Arte, untill skirmiſhing with the *Allobroges* hee ſhaked off his old feaveriſh heate, by a new heate and ardent deſire of fighting. It was crediblely reported to me of late by a Gentleman of the Lord of *Lanſackes* Chamber, that there was a French Gentleman in Polonia who was greivouſly tormented with a quartaine

Chance ſometimes exceeds Arte.

Feaver, who on a time walking upon the banke of the River Wixell to take away the irkeſomeneſſe of his fit, was thruſt in jeaſt into the River by a friend of his that met him by chance, by which (although hee could ſwim, as hee alſo knew that thruſt him in) hee conceived ſo great feare, that the Quartaine never troubled him after. King *Henry* the ſecond commanded me to goe from the Campe at Amiens to the City Dorlan, that I might cure thoſe that were hurt in the conflict with the Spaniards, the Captaine *S. Arbin* although at that time he had a fit of a quartaine ague, yet would hee be preſent at the fight, in which being ſhott through the ſide of his necke with a Bullet, hee was ſtrucken with ſuch a terror of death, that the heate of the Feaver was aſſwaged by the cold feare, and he afterwards lived freed from his Ague.

Obſervat. 4. lib. 2.

Franciſcus Valleriola the famous Phyſition of Arles, tells that *John Berlam* his fellow Citizen troubled with a Palſey of one ſide of his body for many yeares, his houſe taking fire, and the flame comming neere the bed in which he lay, he ſtrucken with a great feare, ſuddenly raiſed himſelfe with all the force hee had, and preſently recovering the ſtrength of his body, leapes out at the window from the top of the houſe, and was preſently cured of his diſeaſe, ſenſe and motion being reſtored to the part, ſo that afterward hee went upright without any ſenſe of paine, who lay unmoveable for many yeares before. Hee tells the like in the ſame place of his coſen *John Sobiratius*; hee was a long time lame at Auignion, by reaſon that the nerves of his hams were ſhrunke and drawne up ſo that hee could not goe; being moved with a vehement and ſuddaine paſſion of anger againſt one of his ſervants whom hee endevored to beate, hee ſo ſtirred his body that forthwith the Nerves of his hams being diſtended, and his knees made plyant hee began to goe and ſtand upright without any ſenſe of paine, when hee had beene crooked about the ſpace of ſix yeares before, and all his life after he remained ſound.

Cap. ult. lib. de cur. rat. per ſanguinis miſſ.

Galen tells hee was once fetched to ſtanch the bleeding; for one who had an Artery cut nere his ancle, and that by his meanes hee was cured without any danger of an *Aneuriſma* (*i*) a relaxation of a veinous veſſell; and beſides by that accidentall wound hee was freed from moſt greivous paine of his hippe, with which he was tormented for foure yeares before: but although this eaſing of the paine of the Sciatica happened according to reaſon by the evacuation of the conjunct matter, by the artery of the anckle of the ſame ſide being opened; yet becauſe it was not cut for this purpoſe, but happened onely by chance, I judged it was not much diſſenting from this argument.

Galen by a dreame cures the Sciatica.

Pliny writes that there was one named *Phalereus*, which caſting up blood at his mouth, and at the length medicines nothing availing, being weary of his life, went unarmed in the front of the battell againſt the enemy, and there receiving a wound in his breaſt, ſhed a great quantity of blood, which gave an end to his ſpitting of blood, the wound being healed, and the veine which could not containe the blood being condenſate.

At Paris *Anno* 1572. in *Iuly* a certaine Gentleman being of a modeſt and courteous cariage fell into a continuall Feaver, and by that meanes became Franticke, moved with the violence of which hee caſt himſelfe headlong out of a window two ſtoryes high, and fell firſt upon the ſhoulder of *Vaterra* the Duke of Alenzons Phyſition, and then upon the pavement; with which fall hee cruelly bruized his ribbs and hippe, but was reſtored to his former judgment and reaſon. There were preſent with the Patient beſides *Valterra*, witneſſes of this accident theſe Phyſitions, *Alexis*, *Magnus*, *Duretus*, and *Martinus*. The ſame hapened in the like diſeaſe, and by the like chance to a certaine Gaſcoyne lying at the houſe of *Agrippa* in the Paved ſtreete.

Othomannus Doctor of Phyſicke of Mompelier and the Kings profeſſor, told me that a certaine Carpenter at Broquer a village in Switzerland, being franticke caſt himſelfe headlong out of an high window into a river, and being taken out of the water was preſently reſtored to his underſtanding.

But if we may convert caſualties into counſell and Arte, I would not caſt the

Patient headlong out of a window. But would rather caſt them ſodainely and thinking of no ſuch thing into a great ceſterne filled with cold water, with their heads foremoſt, neither would I take them out untill they had drunke a good quantitie of water, that by that ſodaine fall and ſtrong feare, the matter cauſing the Frenzy might be carryed from above downewards, from the noble parts to the ignoble; the poſſibility of which is manifeſt by the forerecited examples, as alſo by the example of ſuch as bit by a mad Dogge, fearing the water are often ducked into it to cure them.

The cauſe of the laſt recited cures,

Chap. XXIIII.

Of Certaine jugling and deceiptfull wayes of Curing.

HEre I determine to treat of thoſe Impoſtors, who taking upon them the perſon of a Chirurgion, doe by any meanes either right or wrong put themſelves upon the workes of the Arte; but they principally boaſt themſelves amongſt the ignorant common ſort, of ſetting bones which are out of joynt and broken, affirming as falſly as impudently that they have the knowledge of thoſe things from their Anceſtors; as by a certaine hereditary right; which is a moſt ridiculous fiction; for our mindes when we are borne, is as a ſmoth table, upon which nothing is painted. Otherwiſe what need wee take ſuch labour and paines to acquire and exerciſe ſciences? God hath endued all brute beaſts with an inbred knowledge of certaine things neceſſary for to preſerve their life, more than man.

Sciences are not hereditary

But on the contrary hee hath enriched him with a wit furniſhed with incredible celerity and judgment, by whoſe diligent and laborious agitation he ſubjects all things to his knowledge. For it is no more likely, that any man ſhould have skill in Chirurgery becauſe his father was a Chirurgeon, than that one who never endured ſweat, duſt nor Sunne in the field, ſhould know how to ride and governe a great horſe, and know how to carry away the credite in tilting, onely becauſe hee was begot by a Gentleman and one famous in the Arte of Warre.

There is another ſort of Impoſtors farre more pernitious and leſſe ſufferable, boldly and inſolently promiſing to reſtore to their proper unity and ſeate, bones which are broken and out of joynt, by the onely murmuring of ſome conceited charmes, ſo that they may but have the Patients name and his girdle. In which thing I cannot ſufficiently admire the idleneſſe of our Country-men ſo eaſily crediting ſo great and pernitious an error; not obſerving the inviolable law of the ancient Phyſitions, and principally of Divine *Hippocrates*, by which it is determined, that three things are neceſſary to the ſetting of bones diſlocated and out of joynt; to draw the bones aſunder; to hold the bone receiving, firmely immoveable with a ſtrong and ſteddy hand; to put the bone to be received into the cavity of the receiving. For which purpoſe the diligence of the Ancients hath invented ſo many engines, Gloſſocomies and bands, leſt that the hand ſhould not be ſufficient for that laborious worke; What therefore is the madneſſe of ſuch Impoſtures to undertake to doe that by words, which can ſcarſe be done by the ſtrong hands of ſo many Servants, and by many artificiall engines?

A moſt impudent ſort of Impoſtors,

Three things neceſſary for the cure of a Luxation,

Of late yeares another kind of Impoſture hath ſprung up in Germany, they beate into fine powder a ſtone within there mother tongue they call *Bembruch*, and give it in drinke, to any who have a bone broken, or diſlocated, and affirme that it is ſufficient to cure them. Through the ſame Germanie there wander other Impoſtors who bid to bring to them the Weapons with which any is hurt; they lay it up in a ſecret place and free from noiſe, and put and apply medicines to it, as if they had the patient to dreſſe, and in the meane time they ſuffer him to go about his buſines, & impudently affirme that the wound heales by litle and litle by reaſon of the medicine applyed to the weapon,

But it is not likely that a thing inanimate which is deſtitute of all manner of ſence, ſhould feele the effect of any medicine; and leſſe probable by much, that the wounded party ſhould receive any benefit from thence. Neither if any ſhould let mee ſee the truth of ſuch jugling by the events themſelves and my owne eyes, would I therefore beleeve that it were done naturally and by reaſon, but rather by charmes and Magicke.

In the laſt aſſault of the Caſtle of *Hiſdin* the Lord of *Martigues* the elder was ſhot through the breaſt with a Musket bullet. I had him in cure together with the Phyſitions, and Chirurgions of the Emperoure *Charles* the fift and *Emanuel Philibert* the Duke of Savoy, who becauſe hee entirely loved the wounded priſoner, cauſed an aſſembly of Phyſitions and Chirurgions to conſult of the beſt meanes for his cure. They all were of one opinion, that the wound was deadly and incureable, becauſe it paſſed through the midſt of his lungs, and beſides had caſt forth a great quantity of knotted blood into the hollowneſſe of his breſt.

There was found at that time a certaine Spaniard, a notable Knave, and one of thoſe Impoſtors who would pawne his life, that hee would make him ſound; wherefore this Honorable Perſonage being in this deſperate caſe was committed to his care. Firſt of all hee bid they ſhould give him the Patients ſhirte, which hee tore into ſhreds and peeces, which preſently framing into a Croſſe, hee laid upon the wounds whiſpering ſome conceived or coined words, with a low murmure. For all other things hee wiſhed the Patient to reſt content, and to uſe what diet hee pleaſed, for hee would doe that for him, which truely, he did. For hee eate nothing but a few Prunes, and drunke nothing but ſmall beere, yet for all this the wounded Prince died within two dayes; the Spaniard ſlipt away, and ſo ſcaped hanging. And whileſt I opened the body in the ſight of the Phyſitions and Chirurgions to embalme him, the ſignes and accidents of the wound did evidently and plainly appeare to be as we had pronounced before.

What wounds may be cured onely by lint, or by tents and water.

And there be alſo other Iugling companions of this tribe, who promiſe to cure all wounds with linte, or Tents either dry, or macerated in oyle, or water, and bound to the wound, having murmured over ſome charme or other, who have had ſometimes, good ſucceſſe, as I can witneſſe. But the wounds upon which triall was made were ſimple ones, which onely required union, or cloſing for to perfect the cure. So verily the bones of beaſts when they be broke, grow together by the onely benefit of Nature. But when the affect ſhall be compound by diverſity of Symptomes, as a wound with an ulcer, inflammation, contuſion and fracture of a bone, you muſt hope for no other from Tents or Lints, nor charmes than death. Therefore the common ſort who commit themſelves to theſe Impoſtors to be cured, doe not onely injure themſelves, but alſo hurt the Common-wealth, and the common profit of the Citizens; for whoſe good and juſtice ſake a prudent Magiſtrate ought to deprive impoſtors of all freedome in a free and Chriſtian common-weale.

Witches, Conjurers, Diviners, Soothſayers, Magitians and ſuch like, boaſt of curing many diſeaſes; but if they doe or performe any thing in this kind, they doe it all by ſlights, ſubtilties and forbidden Arts, as Charmes, conjurations, Witcheries, Characters, Knots, Magicall Ligatures, Rings, Images, Poyſons, laces tyed acroſſe, and other damnable trickes, with which they pollute, pervert and defame the prime and ſacred Arte of Phyſick & that with the danger of mens lives. Who certainly are to be baniſhed by the lawes of our country, eſpecially ſeeing it is decreed in *Moſes* Law. *Let none be found among you that uſeth witchcraft*, or a regarder of times, or a marker of the flying of Fowles, or a Sorcerer or a Charmer, or that counſelleth with Spirits, or a Soothſayer, or that asketh counſell at the dead; for all that doe ſuch things, are abomination to the Lord, and becauſe of theſe abominations the Lord thy God doth caſt them out before thee. But the Miracles of our

Deuteron. 18.

our Lord Ieſus Chriſt the Sonne of God, and of his Saints and Apoſtles in curing diſeaſes beyond nature and all Arte, are of another kind, which we ought to beleeve ſo firmely and conſtantly, that it ſhould be counted an impiety for a Chriſtian to doubt of them. All holy writings are full of theſe, as to give ſight to the blinde, hearing to the deafe, power to goe to thoſe ſicke of the Palſey, to drive forth Devills, to cure the Leproſy, to give fruitfullneſſe to weomen, to raiſe the Dead, and performe by the holy Ghoſt other Miracles which exceed the condition and law of Nature; whom here we earneſtly intreat to free and protect us from uncleane Divels and the ſpirits of diabolicall deceit, and to give us the minde that we may will and be able alwayes to aſpire to Heaven and faſten the hope, ſafety and anchor of all our fortunes in God alone. Amen.

The End of the firſt Booke.

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THE SECOND BOOKE OF LIVING CREATVRES, AND OF THE EXCELLENCY Of Man.

The difference of brute beaſts.

BEfore I come to ſpeake of the Anatomie of mans body; I have thought fit to ſay a little of the nature of brute Beaſts. There is betweene beaſts a great deale of difference by nature; for of theſe, ſome are hardy and bold, others fearefull; ſome wilde and ſavage, others tame; ſome walking in heards, others wandring alone; ſome covered and defended with ſhels and ſcales, as the Crocodile, the Tortois and many kinds of fiſh, others have ſtings and prickles.

The Horſe hath his hard and ſtrong hoofes, his creſt (as being a generous beaſt) beſet with a thicke and harſh mane, The defence of the magnanimous Lion, are his teeth, his crooked pawes and taile; Bulls are formidable by their hornes; the Boare by his tuskes ſtanding out, as it were naturall hunting ſpeares. The Hare being a timerous creature, is naked and unarmed, but in recompence thereof nature hath made her nimble and ſwift of foot. For what the more noble and couragious beaſts have in armes, is ſupplied in the fearefull by nimbleneſſe and celerity. Infinite are the other endowments of brute beaſts, and ſuch as can hardly be imagined, or deſcribed. For if wee diligently ſearch into their nature, wee ſhall obſerve the impreſſions and ſhadowes of many vertues, as of magnanimitie, prudence, fortitude, clemency, and docillitie: for they entirely love one another, follow thoſe things that are good, ſhunne thoſe that are hurtfull, and gather and lay up in ſtore thoſe things that are neceſſary for life and food. Laſtly, they give undoubted preſages of the weather, and Aire. They have taught men many things, and are of a moſt exquiſite and quicke ſence; of rare Art in vocall muſicke, prdent and carefull for their young, and faithfull lovers of their native ſoile. They are religiouſly obſervant of the rights of friendſhip and chaſtitie. They have their weapons whereby they are prepared, both to invade, and to defend themſelves being invaded; they ſubmit themſelves to the diſcipline of man, practiſe and imitate his ſpeech, and mutually prattle and chant one to another. They have a kind of weale-puklicke amongſt themſelves, and know

Some ſhadow of vertue in beaſts.

know how to preſerve their preſent welfare, and to depell the contrary, being in this their owne Counſellors, and not tutored by man. Yea man is beholden to them for the knowledge of many wholeſome things. The conſideration of which bred ſo great a doubt amongſt the ancient Philoſophers, that it was a queſtion amongſt them, whether beaſts had uſe of reaſon, or no? Therefore alſo the wiſe *Salomon* ſends us for examples of parſimonie and diligence unto the Ant or Piſmire; and *Eſaias* in exprobration of the people of Iſrael for their ingratitude and rebellion againſt God, ſends them to the Oxe and Aſſe; for they doe not onely know, but reverence their Maiſters.

But from whence is the knowledge of theſe medicines, wherewith the Art of Phyſicke is ſo richly adorned, but from brute beaſts, as *Pliny* affirmeth. The infallible vertue of the herbe *Dictamnus*, in drawing darts out of the fleſh, was taught us by the Hart, who wounded with the Huntſmans darts or arrowes, by meanes hereof drawes out the weapons which remaines ſticking in her. Which is likewiſe practiſed by the Goates of Candie, as *Ariſtotle* writeth. The wonderfull effect which *Celandine* hath upon the ſight, was learnt by the practiſe of Swallowes, who have bin obſerved with it to have beſmeared, and ſo ſtrengthened the eyes of their young. Serpents rubbe their eyelids with fennell, and are thought by that meanes to quicken and reſtore the decaying ſight of their eyes. The Tortois doth defend & ſtrengthen her ſelfe againſt the biting of Vipers, by eating of ſavorie. Beares by eating of Piſmires, expell that poiſon that they have contracted by their uſe of Mandrakes. And for correction of that drowzineſſe and ſloth which growes upon them by their long ſleepe in their dens, they eate the herbe *Aron* (i) Cuckopint. But the Art they uſe in the entiſing and catching of Piſmires is very pretty; They goe ſoftly to the holes or hilles of the Piſmires, and there lay themſelves all their length upon the ground, as if they were dead, hanging out their tongue wet with their foame, which they draw not againe into their mouth, before they feele them full of Piſmires, which are intiſed by the ſweetneſſe of the foame: And having taken this as a purging medicine, they expell by the guts, thoſe ill humors wherewith they were offended. Wee ſee that Dogges give themſelves a vomit, by eating of a kinde of graſſe, which is from thence called Dogge-graſſe. Swine, when they finde themſelves ſicke, will hunt after ſmale or river lobſters. Stockdoves, Blackbirds, and Partridges, purge themſelves by bay leaves. Pigeons, Turtels, and all ſort of Pullen, diſburden themſelves of groſſe humors, by taking of Pellitory of the wall. The bird Ibis (being not much unlike the Storke) taught us the uſe of Cliſters. For when he finds himſelfe oppreſſed with a burden of hurtfull humors, he fills his bill with ſaltwater, and ſo purgeth himſelfe by that part, by which the belly is beſt diſcharged. The invention of the way of removing the Cataract of the eye, wee muſt yeeld unto the Goate, who by ſtriking by chance againſt the thorny buſhes, pulls off the Cataract which hinders the ſight, and covers the ball of the eye, and ſo recovers his ſight. The benefit of Phlebotomie, we owe unto the Hippotamus or River-horſe, being a kinde of Horſe, and the inhabitant of the river Nilus; who being a great devourer, when hee finds himſelfe ſurcharged with a great deale of bloud, doth by rubbing his thigh againſt the ſharpe ſands on the bankeſide, open a veine, whereby the ſuperfluous bloud is diſcharged, which he ſtoppeth likewiſe when it is fit, by rowling himſelfe in the thicke mudde. The Tortois having chanced to eate any of the fleſh of a Serpent, doth make *origanum* and marjerom her Antidote. The ancients found helpe from brute beaſts, even againſt the dreadfull and none-ſparing force of lightning; for they were of opinion that the wings of an Eagle were never ſtrucke with lightning, and therefore they put about their heads little wreathes of theſe feathers. They were perſwaded the ſame thing of the Seale, or Sea-calfe, and therefore were wont to encompaſſe their bodies with his ſkinne, as a moſt certaine ſafegard againſt lightning. It were a thing too long, and laborious, to ſpeake of all thoſe other muniments of life and health (obſerved here and there by *Ariſtotle* and *Plinie*) which we have learnt of brute beaſts. I will therefore end this Chapter, after that I have firſt added this; That we are beholding to beaſts not onely for the skill of curing diſeaſes, and of preſervation of health, but for our foode, our raiment, and the ornament and beautifying the bodies.

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The craftineſſe of Beares.

The bird Ibis the firſt inventer, or ſhewer of Clyſters.

The invention of removing a Cataract.

The invention of Phlebotomie.

A preſervative againſt thunder.

Of

Of the Faculty of brute Beaſts in Preſaging.

The firſt knowledge and skill of Prognoſtication, and obſervation of weather by the Aire, was firſt delivered unto us from beaſts of the land and water, and from fowle. For we ſee in daily obſervation, that it is a ſigne of change of weather, when Lambes and Rammes doe butt at one another with their hornes, and playing wantonly doe kicke, and keepe up their heeles. The ſame is thought to bee preſaged when the Oxe lickes himſelfe againſt the haire, and on the ſodaine fills the Aire with his lowing, and ſmells to the ground, and when he feedes more greedily than he uſed to doe. But if the Piſmires in great multitudes fetch their prey ſo haſtily, that they runne and tumble one upon another in their narrow pathes, it is thought a ſigne of raine; As is alſo the buſie working of Moales, and the Cats rubbing and ſtroaking of her head and necke, and above her eares, with the bottome of her feete. Alſo when Fiſhes play and leape a little above the water, it is taken for a ſigne of raine. But if the Dolphins doe the ſame in the ſea, and in great companies, it is thought to preſage a ſodaine ſtorme and tempeſt. Whereby the Marriners forewarned, uſe all care poſſible for the ſafetie of themſelves and their ſhippes, and if they can, caſt Anchor. And it is ſufficiently knowne what the louder croaking of Frogges than ordinary portends.

What the butting of Rams ſignifies.

Preſages of raine.

The ſigne at ſea of a ſtorme at hand.

But the facultie of birds in this kinde of preſaging is wonderfull. If Cranes flie through the aire without noiſe, it is a ſigne of faire weather, and of the contrary, if they make a great noiſe and flie ſtragglingly. As alſo if Sea-fowle flie farre from the ſea, and light on the land. The crie or ſcritching of Owles portends a change of the preſent weather, whether foule or faire. *Plutarch* ſaith, that the loude cawing of the Crow betokens windes and ſhowres, as alſo when he flappes his ſide with his wings. Geeſe, and Duckes, when they dive much, and order, and prune, and picke their feathers with their beakes, and crie to one another, foretell raine; and in like manner Swallowes when they flie ſo low about the water, that they wet themſelves, and their winges. And the Wren, when he is obſerved to ſing more ſweetly than uſuall, and to hop up and downe. And the Cocke when he chants, or rather crowes preſently after the ſetting of the Sunne. And Gnats, and Fleas, when they bite more than ordinary. If the Herne ſoare aloft into the aire, it betokeneth faire weather, if on the contrary he flie cloſe by the water, raine. If Pidgeons come late home to the Dove-houſe, it is a ſigne of raine. If Bats flie in the evening, they foreſhew wet weather. And laſtly, the Crocodile layes his egges in that place, which muſt be the bounds of the overflowing of the river Nilus; And therefore he that firſt meetes with theſe egges, tels the reſt of the countrie people, and ſhewes them how high the floud will riſe, and what inundation it will make upon their grounds. A thing moſt worthy of admiration, that in this monſter, there ſhould be that ſtrong facultie of preſaging.

The Crocodile by laying her egges, ſhewes the bounds of the increaſe of the river Nilus.

Of the Induſtry of Fiſhes.

Many ſea-Fiſhes, when they feele a tempeſt comming, doe gravell or balaſt themſelves, to the end they may not be toſſed up and downe at the pleaſure of the waves. Others when the fury of the ſea is at the hight, hide themſelves in the holes of rockes. But in that they ſwim againſt the ſtreame, they doe it, for this cauſe and reaſon, that the force of the ſtreame, and the floud may not take from them, and ſtrike off their ſcales, and that their gills may not fill with water which would hinder their ſwimming, and intercept their reſpiration. As by the ſame adviſe Cranes flie againſt the winde, whereas if they ſhould flie downe the winde, their feathers would be diſplaced and broken, and they would not be able to flie.

How Fiſhes provide for their ſafetie againſt a ſtorme.

How they ſwimme againſt the ſtreame.

Of the induſtry of Birds in the building of their neaſts.

Of what things birds build their neaſts.

In what ſhape.

With what care Sparrowes breed their young.

THe induſtrie of Birds in the building of their neaſts, is ſuch, that it doth farre exceede the art and skill of all Maſons, and Architects. From whence it is become a Proverbe, *That men know, and can doe all things but make Birds neaſts.* They are built within with wooll, and feathers, and ſuch kinde of ſoft things, which are as a kinde of a pallet for the young ones. Swallowes build their neaſts in a round forme, that they may be the more firme, and leſſe ſubject to be hurt by any thing that ſhall ſtrike againſt them; and likewiſe more capacious. They chuſe their matter out of dirt and chaffe (interlacing it with many ſtrawes) as it were their plaſter, or lime. Thoſe that build in trees, doe make choiſe of the ſoundeſt boughes, as if they meant to have them as a ſure foundation for the building which they ſhould erect thereon. The Cocke and the Henne doe by turnes ſit over their egges, and likewiſe fetch their meate, interchanging each others labour, neither doe they ever forſake their young, before they are able to get their owne living. I had at my houſe a great number of Sparrowes neaſts in earthen pots, And when the young ones begun to waxe pretty bigge, and to be covered with feathers, I made the whole neaſt be taken down, and ſet upon the ground, that I and my friends might delight our ſelves in beholding the care of the old ones in the feeding of their young; for they feede them every one in order, skipping none, neither will they (to the wrong of the reſt) give one two parts, although he gape, and be importunate for it.; dividing moſt juſtly to every one his owne ſhare, according to the exact rule of diſtribution. And often times for experiment, I would make triall with a ſtrange Sparrow of the ſame age, laid neere, or put among the reſt of the young ones, whether the old ones would feede the ſtranger, as if it were legitimate. But this as a ſtranger and a baſtard they would ſuffer to ſtarve, skipping it when it gaped after the meate. And in like manner Lambes and young Kiddes doe in the fields, in the midſt of a great flocke, runne every one to his owne damme, who being moſt certainely able to diſtinguiſh betweene the legitimate and a baſtard, will not ſuffer her ſelfe to be ſuckt but by her owne young.

Of the induſtry of Spiders.

How the Spiders weave

How they catch their prey.

THe Spider ſpinnes her web with wonderfull artifice, hanging and faſtening it to every tacke or ſtay that is nigh, drawing of his thread, and running upwards, and downewards, and every way. And although the diligence of the chamber maid beates downe, and marres this pendulous and new begunne worke, yet her ſeate and her hold, the Spider keepes ſtill, neither is ſhe, or will ſhe deſiſt from the worke ſhee hath begunne, but in a very ſhort time, weaves a great deale more unto the ruines of her former worke, than can bee unweaved againe with much labour. So that from hence all cloth and linnen Weavers, all imbroiderers, and workers with the needle, (you will eaſily thinke) have learnt their Arts, if either you obſerve the exactneſſe of the weaving, the fineneſſe of the thred, or the continuation and indiſſoluble knitting together of the whole web; for being abrupt and troubled with no ends of threds at all, it reſembles a thinne membrane, annointed with a kinde of glew, wherewith when the prey is entangled, the Spider runnes preſently in, and as it were drawes her nets, and infolds, and takes the captive after the manner of huntſmen. If this were not daily ſeene with our eyes, it would be thought fabulous.

Of Bees.

Bees chuſe themſelves a King.

I cannot paſſe in ſilence the great induſtry of Bees. For having eſtabliſhed a kinde of Weale-publique, they make election of a King, who is ſuch a one, as in proceritie of body, and excellencie of feature, exceedeth all the reſt. He is remakeable by his ſhort wings, his ſtraight legges, his grave gate, and in ſtead of a Diadem or regall Crowne, either he hath no ſting, or elſe doth not uſe it, which is the Artillery of the reſt. He never goeth unattended out of the hive, but alwaies invironed with a princely retinue, the reſt of his traine following after, neither goes he at any time abroad, but upon urgent affaires which concernes the whole ſtate. His progreſſe is forewarned by the voice and ſound of trumpets, and as it were with ſinging, and they all draw nigh. Every one gets as neere to his perſon as he can, and when he is weary with flying, they all beare him up with thir owne bodies.

Their pitching their tents.

Their obſequies for their dead King.

On what place ſoever he alighteth, there they forthwith pitch their tents. If hee chance to die, they goe not abroad to ſeede, but ſtand all mourning round about the corps; then carrie him out of the hive, and (as it were) follow his hearſe and bury him; and laſtly, having with ſolemnity performed all the funerall rites and obſequies, they chuſe themſelves another King, for without a King they cannot live. He then taketh care of all things, having his eye every where, whileſt that the reſt intend the performance of the worke. And ſuperviſing all, giveth them incouragement, and chaſtiſeth negligence. For their time of going forth for foode, they chuſe a cleare and faire day; for they have a naturall facultie of preſaging of the weather. They are ſuch obſervers of iuſtice and equitie, that never, either with their ſting, or by any other way, doe they moleſt any creature, neither doe they exerciſe and prepare their ſpeares againſt any, but for the ſafegard of themſelves and their hives.

Their iuſtice.

Of the care of Bees.

Their watch.

Their divers imployments.

THey manage and order their affaires in this manner, in the day time they appoint before their gates a ſtation of watchmen, and guarders. In the night, they reſt from their labours, ſo long, till that one (who is appointed to this charge) by one or two hummes, as by a ſound of a Trumpet, rowſeth all the reſt. Then come they together to obſerve what is the ſtate of the weather, which if they foreſee will bee faire, then abroad goe they into the fields, and paſtures. Some therefore bring into the hive little faſcicles of flowers on their thighes, others water in their mouth, and others a dewey moiſture gathered on their bodies. Theſe are met by others, who receive their burdens, which they diſpoſe in their due and proper places. Thoſe that are ſent out into the fields for foode, are the youngeſt and the ſmalleſt. And therefore if the winde chance to riſe any thing high, they expect untill it ceaſe, and that the force and violence thereof bee over. But if it continue violent, then doe they ballaſt themſelves with a little ſtone flying cloſe by the ground, to prevent their being driven too and fro by the force of the winde. They are exceeding diligent in all their buſineſſe, and doe puniſh the ſloth of the lazie oftentimes with death. Some of them are the builders, others poliſh the building, and the reſt bring in their materials.

They puniſh ſloth with baniſhment.

The building in their arched hives is with wonderfull artifice, being made with two doores, one to come in, and the other to goe out at. They have all things alike, leaſt that the inequalitie, either of their food or labour, ſhould give occaſion of diſſention. Their care is, that their houſes may ſhew both ſtate and handſomeneſſe. Idle droanes, borne for nothing but to eate, and conſume the fruits of their labours, they chaſe from their hives. Thoſe that chance to loſe their ſtings, are utterly diſabled, and in a ſhort time their guts come out that way, and they die. They bring to their owners wonderfull increaſe of wax and honey.

Ariſtomachus a diligent obſerver of Bees.

Ariſtomachus the Philoſopher doth boaſt, that for fiftie eight yeares together, hee had with great care beene a nouriſher of Bees, onely that he might the better attaine to the knowledge of their ſtate and condition.

Of Piſmires, and Ants.

NEither truly is the induſtry, diligence, and experience of the Piſmire leſſe worthy of admiration, than that of the Bees. Inſomuch as that *Salomon* bids the ſluggard to take an example of diligence from the Piſmire. Truly if experience did not witneſſe it, it would ſeeme incredible, that ſo ſmall a creature ſhould be able to ſtore up ſuch aboundance of corne, to diſpoſe and manage her affaires in that good

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Wonderfull care.

order that we ſee ſhe doth. *Plinie* ſaith, that they have among them the forme of a well governed and well ordered common weale. For how pretty a ſight it is to ſee them, when they ſeize upon a graine which they have a minde to carrie away, how they ſet to it, and lift it with head and ſhoulders. And how leaſt the corne which they carrie to their ſtore-houſe, ſhould put forth and grow, they bite it at one end. If it be ſo bigge that they cannot carry it into their little hole, they divide it in the middle. If it be dampiſh, they lay it out to drie in the Sunne and open aire. When the Moone is at the full, they follow their worke in the night, when ſhee doth not ſhine, they take their reſt, whereby they ſhew themſelves to have ſome knowledge of heavenly things *Plinie* affirmeth that they have their ſet Faires and Markets, whither they come in great companies, and where they uſe to eſtabliſh leagues of amitie and friendſhip one with another. And when one markes them well, would hee not thinke that they were in conference one with another, and that they did diſcourſe among themſelves of their buſineſſe? Doe wee not ſee that the often trampling of their little feete doth weare a path even upon hard flint ſtones?

There is nothing but may be attained by diligence.

From whence wee may note, what in all kinde of things is the effect of aſſiduitie. They ſay alſo that they performe the rites of buriall one unto another, after the manner of men. What words ſhall I uſe (ſaith *Plutarch*) to expreſſe ſufficiently the diligence and induſtry of the Piſmires. There is not among all the great things in nature, a ſight of greater wonder than theſe. For in the Piſmires are ſeene the markes of all vertue. Their great meetings argue that they maintaine a kinde of friendſhip.

The formes of all vertues expreſt in Piſmires.

Their alacritie in the undergoing of their laboures, ſeemes to ſhew their fortitude and magnanimity; and laſtly, they are eminent examples of temperance, providence, and juſtice. Their mutuall charitie appeareth in this, that if one of them that is not loaden meets another (in one of their narrow paths) that is, hee will give him the way, that hee may the better goe on in his intended journey. They ſay that the firſt entrance into their hole, is not ſtraight, but full of many diverticles and crooked paths, which all end, which will bring you to three little cells; in one of which they have their conventicles, in the other they lay up their proviſions, and in the third they bury the carkaſſes of their dead. This doth *Plutarch* ſpeake concerning Piſmires.

Of Silke-Wormes.

WIth the induſtry of theſe creatures, I ſhall not unfitly joyne that of the Silkewormes, of whoſe paines and care, both in the making of their neaſts, and the ſpinning of their threed and bottomes (wherewith Kings are ſo magnificently adorned) Philoſophers have written very ſtrange things.

Diligence the mother of wealth.

And who can chuſe but wonder at thoſe great endowments of skill and knowledge, and that exceeding induſtry, (the mother of ſo much wealth) in the little body of ſo ſmall a creature? The providence therefore of God, doth not onely appeare in this, that hee hath adorned each creature with a peculiar and proper endowment, but in this eſpecially, that on the leaſt creatures of all, hee hath beſtowed the greater portion of skill, induſtry, and ingenuity to ſupply their defect of bodily ſtrength.

Of the love of Beaſts one towards another and to their young.

The induſtry of Partridge in preſerving their young.

PLutarch writeth; That all kinde of creatures beare a ſingular love, and have a kinde of care of thoſe thatt are generated of them, and the induſtry of the Partridges, this way is much commended; for during the time that their young ones are weake and unable to flie, they teach them to lie upon their backes, and to hide themſelves among the cloddes on the ground, that ſo being almoſt of the ſame colour, they may not be diſcerned by the Faulkoner. But if notwithſtanding, they ſee any body comming, and that hee is neere them, they doe with a hundred dodges and ſtoopings of themſelves, as if they were wearie with flying, entiſe him away from their young to follow after them, and when they have their purpoſe, they then, as if they had recovered ſome freſh ſtrength, fly quite away; who can but wonder at this both affection and ſubtilty?

Neither are thoſe things leſſe wonderfull that are reported of Hares, for when they would goe to their ſeate, they ſever their young, and commit them to the truſt of divers places, it may be two acres aſunder one from another, leaſt peradventure, a Huntſman, a dogge, or any man ſhould chance to come that way, and they might be in danger to be loſt at once. And then after they have traced up and downe, hither and thither, and every way that the dogges may not trace them, nor the Huntſman pricke them, they take a leape or two, and leape into their formes.

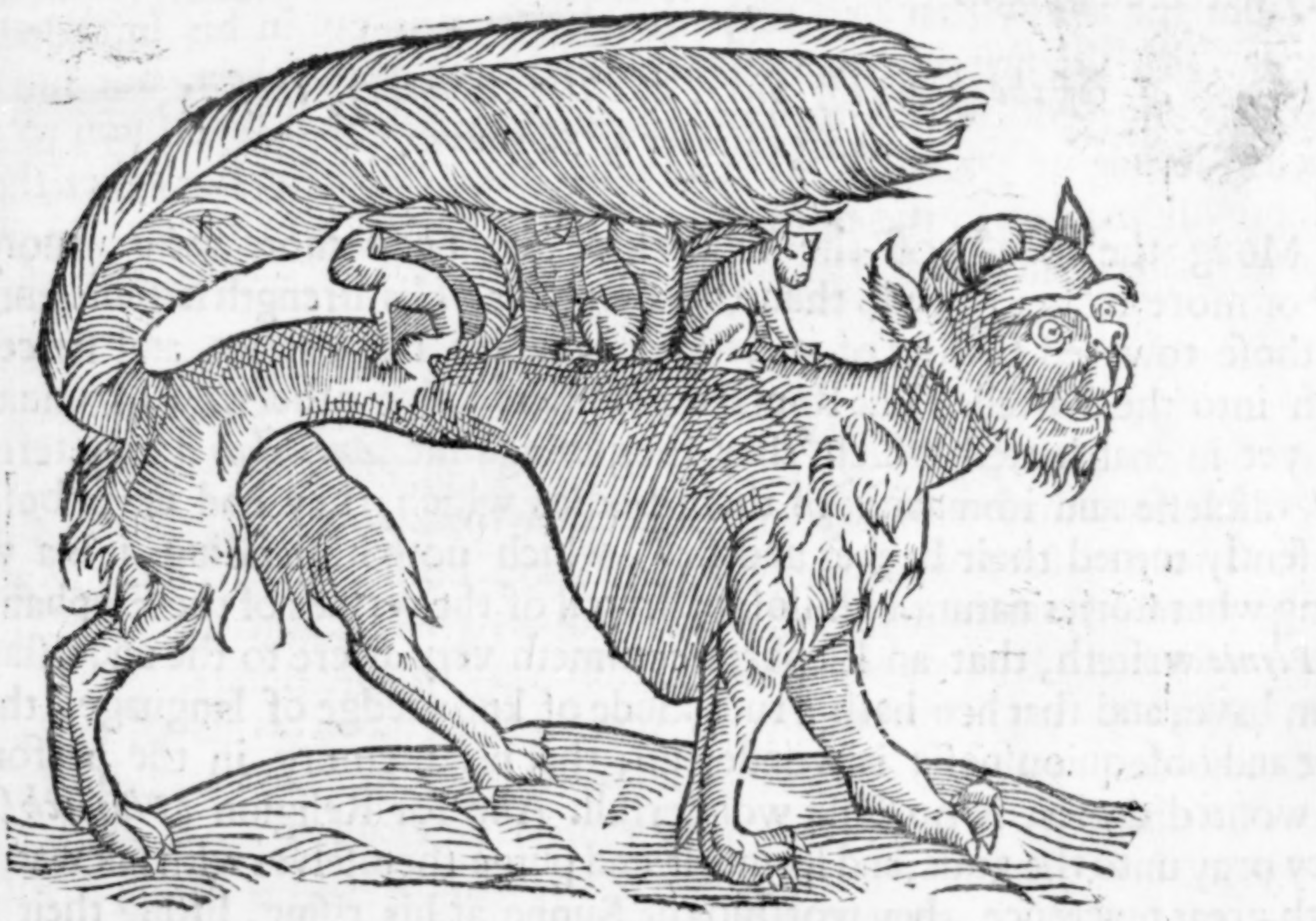
How Hares provide for themſelues and their young, for feare of hunters.

Nor inferior to this is the craft of the Hedghogge, for when the Foxe purſueth him, and is now at his heeles, hee rowles himſelfe up in his prickles like a cheſnut in the outward ſhell, ſo that every part being rounded and encompaſſed with theſe ſharpe and dangerous prickes, hee cannot be hurt. And ſo ſaves himſelfe by this tricke; for his young he provides in this manner.

In the time of Vintage he goes to the vines, and there with his feete hee ſtrikes off the boughs and the grapes, and then rowling his body makes them ſticke upon his prickles, and ſo doth as it were take his burthen upon his backe, and then returnes to his hole; you would thinke that the grapes did move of themſelves; the prey hee devides betweene himſelfe and his young.

The care of the Hedghogge to provide for her young.

In Florida part of the Weſt Indies they have a beaſt, which for the variety and deformitie of it I cannot paſſe over in ſilence; The natives call it Succarath, the Canibals, Su. It keepes for the moſt part about the rivers, and the ſea-ſhore, and lives by



prey. When hee perceiveth that hee is purſued by the Huntſman, hee gets his young ones upon his backe, and with his taile, which is very long and broad, he covereth them, and ſo flying, provideth both for his owne, and their ſafetie; neither can he be taken by any other way but by pits, which thoſe Savage men uſe to digge in the places neere which he is to runne, into which at unawares hee tumbles headlong. This Picture of him here, I drew out of *Thevets* Coſmographie.

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Of the affection of Birds, and of Dogges, towards their Maſters.

THe young Storke provides for the old which is diſabled by age, and if any one of their equalls come to any miſchance, that hee is not able to flie, they will give him their aſſiſtance, and beare him on their backes and wings. And therefore

The pietie of Storkes.

fore this affection and piety towards the old ones, and as it were brotherly love towards their equalls, is commended in the Storke.

The Henne in any kinde of danger gathers her chickins under her wings, and as it were with that guard, defends them as well as ſhee can. For their ſake ſhee expoſeth her ſelfe to the crueltie of the fierceſt beaſts, and will flie in the eyes of a dogge, a Wolfe or a Beare, that by chance offers to meddle with her chickins.

The fidelity of Dogges.

But who is there that doth not admire the fidelitie and love of dogges towards their Maſters, whereby they recompence them for their keeping? A dogge will never forſake his Maſter, no, if he be never ſo hardly uſed. For there is no man can finde a ſticke hard enough to drive that dogge cleane away from him which hath once taken a love to him. There is no kinde of creature that doth more certainely and readily remember his maſter, hee will know the voice of all the houſehold, and of thoſe which frequent the houſe. There cannot bee a truſtier keeper (as *Cicero* himſelfe ſaith) than a Dogge is; I ſpeake not of their faculty of ſmelling, whereby they follow their Maſters by the foote, and finde them, neither doe I ſpeake of thoſe infinite examples of the fidelity of Dogges, which were too long to rehearſe.

Doves free from adultery

Pidgeons, as well the Cocke as the Henne, although they are all very venereous, yet they know no adultery, yea and the Henne will beare with the frowardneſſe of the Cocke, neither will ſhe ever leave him, but reconciling him unto her by her officious diligence, bring him to his wonted dalliance and kiſſes, neither is the love of either of them leſſe towards their young.

Turtles never couple twiſe.

There is the like mutuall bond of love betweene Turtles, for if one of them die, the ſurviver never ſolicites Hymen more, neither will he ever chuſe other ſeate than a dry withered bough.

Of the ſtrength, piety, docilitie, clemency, chaſtity, and gratitude of Elephants.

AMong the beaſts of the field there is none more vaſte, more ſtrong, or more to bee feared, than the Elephant. His ſtrength is ſufficiently ſhowne by thoſe towered Caſtles of armed men, which hee carries, and fiercely ruſheth with into the battell. The Romane ſouldiers being otherwiſe of undaunted ſpirit, yet in that battell which they fought againſt *Antiochus* being terrified with the vaſtneſſe and immanity of theſe bodies which they had never before ſeene, preſently turned their backes and fled, which notwithſtanding, it is a wonderfull thing what ſtories naturall Philoſophers tell of the vertues of the Elephant.

Lib.8. cap.1.

Plinie writeth, that an Elephant commeth very neere to the underſtanding that men have, and that hee hath a rude kinde of knowledge of language; that his facilitie and obſequiouſneſſe is wonderfull, that his memory in the performance of his wonted duties, is no leſſe wonderfull. And for Religion (*Plutarch* ſaith) that they pray unto the gods, and ſprinckle and purge themſelves with ſalt water, and that with great reverence, they worſhip the Sunne at his riſing, lifting their trunkes up towards heaven, for want of hands. *Plinie* addeth, that they doe with the like reverence worſhip the Moone and the Starres. For it is related in the Hiſtories of the Arabians, that at a new Moone the Elephants goe by troupes downe unto the rivers, and there waſh themſelves with water, and being thus purged, kneele downe and worſhip the Moone, and then returne to the woodes, the eldeſt going firſt, and the other following after according to their age.

The religion of the Elephant.

Plutarch reporteth, that it happened once, that among the Elephants which were taught at Rome againſt the Panegyricke ſhewes, there was one that was ſomething dull, and not ſo docile as the reſt, which made him be deſpiſed by his fellowes, and often beaten by his maſter. But that this Elephant, that he might ſupply by diligence what he wanted in wit, was oftentimes obſerved in the night, by the light of the Moone, to be practiſing and conning what he had learnt of his Maiſter in the day time. For they were wont to bee taught to make letters, and alſo to preſent

Pliny lib.8. cap 5.

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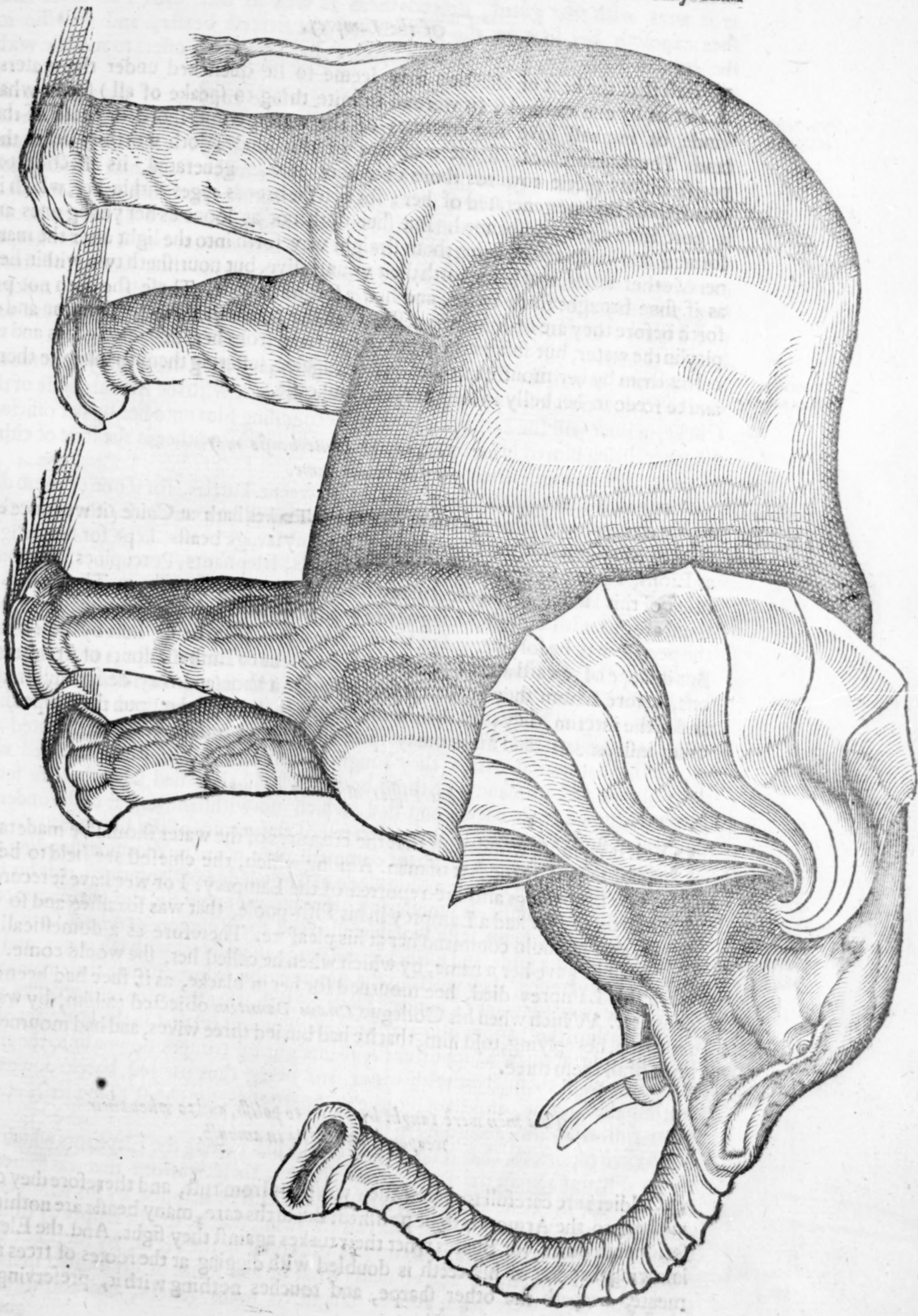
garlands to the ſpectators; and other ſuch like trickes. But they can never bee brought to goe aboord a ſhippe, to bee carried over the ſea into any ſtrange land, unleſſe their Maſter give them his word to aſſure them that they ſhall



returne againe to their owne native ſoile. They never hurt any one that doth not firſt provoke them. They never gender but in private out of ſight, an argument of their modeſtie.

Of the Lamprey.

LEaſt that the heat of affection may ſeeme to lie quenched under the waters, let us by one example, (it were an infinite thing to ſpeake of all) ſee in what kinde of mutuall love the creatures of the water come ſhort of thoſe of the land. The Lamprey of all the creatures of this kinde doth worthily beare the praiſe for its pietie towards thoſe of whom it was generated, its affection towards thoſe that are generated of her; for firſt ſhe breeds egges within her, which in a ſhort time after are ſpauned. But ſhee doth not as ſoone as her young ones are formed and procreated, bring them ſtraight way forth into the light after the manner of other fiſhes, that bring forth their young alive, but nouriſheth two within her, as if ſhee brought forth twice, and had a ſecond broode. Theſe ſhe doth not put forth before they are of ſome bigneſſe, then ſhe teacheth them to ſwimme and to play in the water, but ſuffers them not to goe farre from her, and anon gapes and receives them by her mouth into her bowells againe, ſuffering them to inhabite there, and to feede in her belly ſo long as ſhee thinkes fit.

That Savage, or brute beaſts may bee made tame.

Coſmograph. Tom.2.lib.19. cap 7. THevet reporteth, that the Emperour of the Turkes hath at Caire (it was once called Memphis) and at Conſtantinople, many ſavage beaſts kept for his delight, as Lions, Tigers, Leopards, Antilopes, Camels, Elephants, Porcupines, and many other of this kinde. Theſe they uſe to leade about the citie to ſhew. The maſters of them are girt with a girdle, hung about with little bells, that by noiſe of theſe bells the people may be forewarned to keepe themſelves from being hurt by theſe beaſts. But in hope of reward and of gifts, they ſhew them to Embaſſadours of ſtrange nations, before whom they make theſe beaſts doe a thouſand very delightfull trickes, and in the interim, they play their countrey tunes and muſicke upon their pipes, and other inſtruments, and make many ſports in hope of gaine.

That Fiſhes alſo may be tamed.

BVt it is far more wonderfull, that the creatures of the water ſhould be made tame, and be taught by the Art of man. Among which, the chiefeſt are held to be the Eele. The ſame things alſo are reported of the Lamprey. For wee have it recorded, that *Marcus Craſſus* had a Lamprey in his Fiſh-poole, that was ſo tame, and ſo well taught, that he could command her at his pleaſure. Therefore as a domeſticall and tame beaſt he gave her a name, by which when he called her, ſhe would come. And when this Lamprey died, hee mourned for her in blacke, as if ſhee had beene his daughter. Which when his Collegue, *Cnæus Domitius* objected to him, by way of reproach, he replying, told him, that he had buried three wives, and had mourned for none of all them three.

That men were taught by beaſts to poliſh, and to whet their weapons, and to lie in ambuſh.

SOuldiers are carefull to keepe their weapons from ruſt, and therefore they carrie them to the Armorers to be poliſhed. But in ths care, many beaſts are nothing inferior unto them; for Boares whet their tuskes againſt they fight. And the Elephant knowing that one of his teeth is doubled with digging at the rootes of trees to get meate, keepeth the other ſharpe, and touches nothing with it, preſerving it for his

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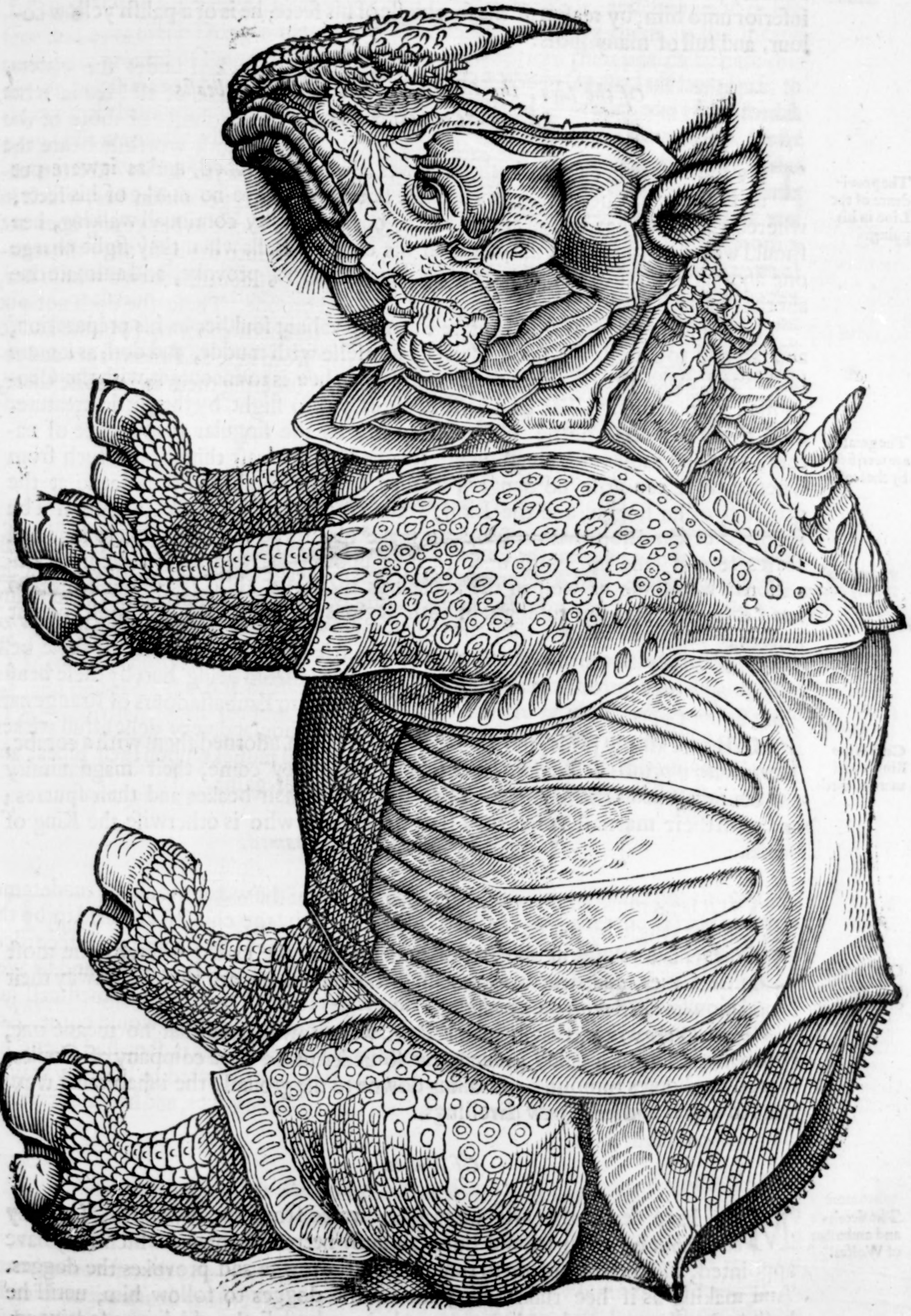
his combate with the Rihnocerot his enemy; but the craft of the Rhinocerot is very remarkeable, that being in continuall enmity with the Elephant, at the time

The craft of the Rhinocerot about to fight with the Elephant.



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The craft of the Rhinocerot about to fight with the Elephant.

when hee prepares for the battell, he whets his horne againſt a rocke, as if it were with a whetſtone; nor (if he can chuſe) will he ſtrike any other part of the Elephant but the belly, becauſe he knowes that part of the Elephant is ſo tender, that it may be eaſily pierced. This beaſt is in length equall to the Elephant, but in height hee is inferior unto him, by reaſon of the ſhortneſſe of his feete; he is of a paliſh yellow colour, and full of many ſpots.

Of the Lion, the Ichneumon, and thoſe other beaſts which are not eaſily terrified.

The providence of the Lion in his going.

THe Lion when hee goes, hath his clawes alwayes clutched, and as it were put up in their ſheathes, not onely becauſe hee would leave no marke of his feete, whereby hee may bee traced and ſo taken, but becauſe by continuall walking, hee ſhould weare off, and blunt the points of his clawes. Bulls when they fight charge one another with their hornes, and like valiant ſouldiers, provoke, and animate one another to the battell.

The greateſt are terrified by the leaſt.

The Ichneumon ſeemes to imitate the moſt valiant ſouldier in his preparation, and acceſſe to battell, for hee bedawbes himſelſe with mudde, and doth as it were buckle and make tite his armour; eſpecially when hee is to encounter with the Crocodile; who although hee be a vaſte beaſt, is put to flight by this little creature. And this truly hath beene obſerved to bee by the ſingular providence of nature, that the moſt vaſte creatures are terrified by the leaſt things, and ſuch from whence there can ariſe no danger; ſo they ſay the Elephant doth ſtartle at the grunting of an hogge, and the Lion, at the crowing of a Cocke; although it be reported of the Lion that no feare can make him turne his face. Theſe kinde of feares, terrors, and affrightments, ariſing upon light, and moſt ridiculous occaſions, wee finde as well in the ancient as moderne Hiſtories of our times, to have diſperſed and put to flight mightie legions of ſouldiers, and moſt potent armies.

Of Cockes.

Cockes are Kingly and martiall birds.

COckes are kingly birds, and therefore nature hath adorned them with a combe, as with a princely Diadem, and whereſoever they come, their magnanimity and courage makes them Kings. They fight with their beakes and their ſpurres; and with their martiall voice they fright the Lion who is otherwiſe the King of beaſts.

Of Conies.

Conies have taught us undermining.

COnies have taught us the Art of undermining the earth, whereby the moſt loftie Cities, and ſtructures reaching the very skies, are by taking away their foundation levelled with the ground.

Marcus Varro writes, that in Spaine there was a towne, and that no meane one, which ſtanding on a ſandy ground was ſo undermined by a company of Conies, that all the houſes tumbling and falling downe to the ground, the inhabitants were faine to depart and ſeeke new dwellings.

Of Wolfes.

The deceits and ambuſhes of Wolfes.

MEn have learnt the arts of waging warre from the Woulfes, for they come out by troupes, and lie in ambuſh neere the townes which they have appointed, and then one of them runnes unto the towne and provokes the dogges. And making as if hee runne away incites the dogges to follow him, untill he hath gotten them unto the place where their ambuſh lieth, which on a ſodaine appeareth, and ruſheth out upon them. And ſo they kill and eate all, or as many of the dogges as they are able to catch.

Of the Fox.

IN ſubtilty and craft the Fox exceedeth all other beaſts; when in the chaſe the Doggs are at his heeles, he berayes and bepiſſes his taile, and ſwings it in the face and eyes of the Dogges that follow him, and ſo blinding them, in the meane time getts ground of them. To fetch the Hens downe from their pearch he hath this deviſe, hee ſhakes and ſwings his taile upwards and downewards, as if hee meant to throw it at them; which they fearing tumble down, & he takes up one of them for his prey. His warineſſe when he paſſeth over a River that is frozen is wonderfull, for he goes ſoftly to the banck, and layes his eare to liſten, if he can heare the noyſe of the water running under the ice. For if he can, back he goes, and will not venter to paſſe over. The knowledge of which thing he could never meerely by his ſubtilty and craft attaine unto, but that of neceſſity hee muſt have ſome faculty of reaſoning. ioyned with it, which by diſcourſe and by proving one thing by another arrives at this Concluſion: Whatſoever is liquid and maketh a noyſe is in motion, whatſoever liquid is in motion is not concrete and frozen, that which is not concrete and frozen is liquid, whatſoever is liquid will not beare a heavier body, whatſoever will not beare a heavier body, cannot with ſafety be adventured on; And therefore backe againe muſt I goe, and not paſſe over this River.

The craft of the Foxe.

The Foxe ſeemes to reaſon with himſelfe.

His *Sorites*.

Of Swine.

SWine, if in the woods, they heare any one of the ſame Heard with them crying out, they ſtraight make a ſtand, and marſhalling their forces haſte all, as if they had beene warned by the ſound of a martiall trumpet, to the aſſiſtance of their fellowes.

Of the *fiſhes* Scarus *and* Anthia.

P*Lutarch* reports of the *Scari*, that when one of them chances to ſwallow a hooke and be taken, the reſt of the ſame kind come in to his reskue, and ſhearing the Line with their teeth ſet him at liberty. But the readines of the *Anthiæ* to the mutuall aſſiſtance of one another, is yet more manifeſt, for by caſting the Line upon which the hooke hangeth, on their backe, with the ſharpneſſe of their fins they cut it aſunder, and ſo ſet free themſelves and their captived fellowes.

The love of Fiſhes one to another.

Of the Pilot *Fiſh*.

THere is great kindneſſe betweene the *Pilot* Fiſh and the Whale. For although in bulke of body the Whale ſo farr exceed him, yet he leades the Whale and goes alwayes before him as his Pilot, to keepe him from running himſelfe into any ſtraight or muddy place, whence he might not eaſily get out. And therefore the Whale alwayes followes him, and very willingly ſuffers himſelfe to be led by him, it being for his owne good. And in like manner he getts into the Whales mouth, and there lodging himſelfe ſleepes when he ſleepes, and leaves him not either by day, or night.

The Whales pilot or guid.

Of Cranes.

CRanes when they are to take a long journey into ſome Countrey croſſe the ſeas, put their company in ſo good order, that no Captaine can put his ſoldiers in better. For before they ſtir out of any place, they have as it were their trumpets to call them together, and encourage them to fly. They come together and then fly up on high, that they may ſee a far off, chooſing a Captaine whom they are to follow. They have their Serjants to take care of their rankes, and keepe their nightly watches by turnes. *Plutarch* tells us that the Crane, which is appointed to ſtand Sentinell for all the reſt, holds a ſtone in her foote, to the end that if ſhe chance to

Cranes order themſelves in rankes.

The ſentinell Crane.

give way to nature and ſleepe, ſhe may be waked by the noiſe of the falling ſtone. The leader lifting up his head, and ſtretching out his long necke, lookes about him farre and wide, and gives warning to the reſt, of any danger, that may befall them. The ſtrongeſt leade the way, that they may the better with the flapping of their wings breake the force of the aire, and this they doe by turnes. And that they may the eaſilier prevaile againſt the force and oppoſition of the winds, they diſpoſe their company into a wedge in the forme of the Greeke letter Δ or a triangle; and being ſkilfull in the ſtarres they foreſee when tempeſts are comming, and fly downe to the ground to keepe themſelves from the injury of the approaching ſtorme.

Of Geeſe.

The care of the Geeſe, that their gagling, doe them no harme.

THe Geeſe of Sicilie doe with great warineſſe take care that by their ceeking and their noyſe, they doe not expoſe themſelves to the rapacity of Birds of prey: (for *Plutarch* ſayth) that when they are to fly over the hill Taurus, for feare of the Eagles that are there, they hold ſtones in their mouthes to keepe themſelves from gaggling, untill that they come unto a place where they may be ſecure.

Of Dragons.

The craft of Dragons fighting againſt the Elephant.

NEither are the Dragons leſſe crafty; for thus doe they overcome thoſe vaſte and otherwiſe invincible beaſts the *Elephants*. They lye in ambuſh and ſuddainly ſet upon the *Elephants* where they feare no ſuch matter, and involve their leggs with the twines of their taile, in ſuch ſort, that they are not able to goe forward; and ſtop their noſthrils with their heads ſo that they cannot fetch their breath, they pull out their eyes, and whereſoever they find the ſkin moſt tender, there they bite and ſucke the blood untill they make them fall downe dead. *Pliny* ſayth, that there are Dragons found in Æthiopia of ten Cubits long, but that in India there are Dragons of an 100. foot long, that fly ſo high, that they fetch Birds and take their prey even from the midſt of the cloudes.

Lib. 8. cap. 11. and 12.

Of the Fiſh called, the Fiſherman.

The craft of the Fiſherman-fiſh in taking her prey.

THis Fiſh is called the Fiſherman, becauſe he hunts and takes other Fiſhes, which he doth almoſt by the ſame cunning which the *Cuttell* uſes; for he hath hanging at his throat a certaine bagge like the Wattells of a Turckycocke. This when hee liſteth he caſteth out, and layeth before the little fiſhes for a baite, and then by litle and litle drawes it up againe untill he catch for food the litle fiſhes ſeazing upon it as a prey.

Of the Cuttell Fiſh.

The craft of the Cuttell to ſave her ſelfe.

VVOnderfull is the craft of the Cuttell Fiſhes, for they carry a bladder at their necke full of a blacke juice or Inke, which they poure forth as ſoone as they feele themſelves taken; that ſo they may blinde the eyes of the Fiſhermen, as *Plutarch* ſaith; and as *Ariſtotle* witneſſeth, they with their long fangs doe not onely hunt and take little Fiſhes, but oftentimes alſo Mullets.

Lib. 9. de Hiſt. animal. Cap. 37.

Of the Armes or weapons of brute beaſts.

BRute beaſts are naturally ſo furniſhed with armes, that they have no neede to get, make or borrow in any other place.

And ſome of them nevertheleſſe are ſo furniſhed with ſuch armes that they captivate thoſe which hold them priſoners; an example of this is the *Torpedo*, which doth not onely hurt by touch, but alſo by the net being betweene, he breathes ſuch a quality from him, as ſtupifies the hands of the Fiſhermen, ſo that they are forced to let goe their nets, and ſo let him goe; moreover if it touch a ſhip it makes it ſtay. *Thevet* writes, that the *Perſian* bay towards *Arabia* nouriſhes a Fiſh equall in length and

Coſmog. Tom. 1. lib. 10. cap. 10.

thickneſſe to a Carpe, on every ſide encompaſſed with ſharpe and ſtrong pricks, like our Porcupine, with which hee fights againſt all kinds of fiſh. If a man chance but to be lightly hurt either with theſe or his teeth, he will dye within 24.houres.

Of the fiſh Vtelif.

HEe ſaith moreover, that as he was carryed by force of tempeſt through the Atlanticke Ocean, he ſaw this fiſh having as it were a Saw in his forehead of three foot long, and foure fingers bread, armed on each ſide with ſharpe ſpikes; They call it *Vtelif* in their Country ſpeech.

Of the fiſh Caſpilly.

THere is another fiſh to be ſeene in the Arabian Gulfe, which the Arabians call Caſpilly, its two foot long and as many broad, it hath a skin not much unlike a Dogfiſh, but armed with ſpikes, one whereof he carryes in his forehead a foot and halfe broad, in ſharpeneſſe and force of cutting not much ſhort of a graver or chiſſell: with this weapon when ſhe is oppreſt with hunger ſhe aſſailes the firſt fiſh ſhee meets, neither doth ſhe give over before ſhe carry her as a prey, whither ſhe pleaſe, as *Thevet* ſaith he hath ſeene.

Tom.1 lib.5. cap 2.

Of Crabs.

CRabs and Lobſters though in the quantity of their body they be but ſmall, yet they uſe their forked clawes before, not onely in feeding but alſo in defending themſelves and aſſailing others.

Of the Docility of Beaſts, and firſt of the Dog.

BEaſts are apt to learne thoſe things which men deſire, whereby they ſhew themſelves not wholy void of reaſon. For Dogges, Apes and Horſes learne to creepe thorough the Iuglers hoopes, and riſe on their hinder feet as though they would dance. *Plutarch* tells, that a Iugler had a Dog which would repreſent many things upon the ſtage befitting the occaſion and argument of the play; amongſt the reſt, hee exceeded all admiration in that, that taking a ſoporificke medicine, hee excellently feigned himſelfe dead; for firſt as taken with a giddineſſe in his head he begun to tremble, then preſently fell down, and lying on the ground, as it were contracted his dying members, and laſtly as if truely dead he waxt ſtiffe; and moreover ſuffered himſelfe diverſly to be fitted according to divers parts of the Theater, the fable ſo requiring. But when he, by thoſe things that were ſaid and done, knew it was time to riſe, he firſt begun to move his legs by litle and litle, as if hee had been wakened from a ſound ſleepe; then preſently with his head a litle lifted up, hee looked this way and that way to the great admiration of all the beholders, and finally riſe up and went familiarly and cheerfully to him he ſhould; the which ſight the Emperour *Veſpatian* (who was then preſent in *Marcellus* his Theater) never ſaw any which more delighted him.

The wonderfull docillity of Dogs.

A ſpectacle full of admiration and mirth

Of the Ape.

AN Ape is a ridiculous Creature, and which makes men much ſport, in imitating their actions. There hath beene ſeen an Ape which would pipe and ſing, and beſides dance and write, and endeavour to performe many other things proper to men. I remember I ſaw in the Duke of *Somes* houſe a great and curſt Ape, who becauſe he much troubled many, had his hands cut off, who ſuffering himſelf to be cured, when the wound was cicatrized, he grew more mild and docile. Wherefore cloathed in a greene coate, and girt over his loines with a girdle, he carried hanging therat a caſe of ſpectacles, a paire of knives & a childs handkercheife. He was commited to the charge of the Maſter Cooke to teach, becauſe he had taken up his lodging in the Chimney corner,

Gal.lib.1.de uſu partium.

he

hee was taught many pretty tricks and feates. If at any time hee ſwarved from his doctrine and precepts,in a trice the whip was upon his back & loines, and much was abated of his daily allowance, for as *Perſius* ſaith, The belly is the maſter of Arts and ſharpener of wit. By theſe means be profited ſo,in a ſhort time,that he much exceeded all the Apes of his time in the glory of his wit;& there was none counted more ſkilfull in leaping and dancing to the pipe, running up a pole and nimbly leaping through his Maſters legs. To conclude,he performed all the actions of a ſtrong Ape,and very reverently carried up diſhes with the waiters & ſervingmen, and made cleane the diſhes and platters by licking,and did much other drudgery,ſo that he was commonly called Maſter *Iohn Do-all*. At dinner and ſupper ſitting in a chaire he ſaid grace, and caſt his eyes up towards heaven,and rouled them this way and that way, and ſmote his breaſt with the ſtumpes of his hands with much lamentation, and imitated prayer by the gnaſhing,or beating together of his teeth. He would turne up his taile to any that offended him(for his coate ſcarſe covered halfe his buttocks leſt he ſhould have filed it)he made much other paſtime, alwayes going upright by reaſon of the cutting away of his hands,unleſſe at any time through wearineſſe he were forced to ſit on his buttocks.

Of Ravenous birds.

The diligence of Faulconers in training up their Hawkes.

BVt let us take a veiw of Faulconers teaching ravenous birds,how with ſwift wings carried aloft into the Aire,they may ſeaze upon other Birds and caſt them downe dead to the ground; in performance whereof, they often too freely ſoare up to the clouds ſo that they carry themſelves out of the Faulconers ſight, with a deſire to ſun themſelves, neglecting in the meane time their deſigned prey.

The fight of the Herne and Faulcon,

The *Herne* when ſhe ſees her ſelfe kept under and below the *Falcon* carried up by his ſtrong wings with a merveilous ſwiftneſſe, with her beake,which is long & ſharpe, hid under her wings and turned upwards,ſhe receives the *Falcon* blinded with the heat of fight and deſire of prey,careleſly flying downe and ruſhing upon him ;ſo that he often ſtrikes him through the gorge,ſo that oft times they both fall downe dead to the ground. But if the *Falcon* without harme eſcape the deceits by Arte & the happy turning of his body,and the *Herne* be not caſt downe,the Faulconer calling her backe with never ſo loud a voyce, yet by ſetting up her Feathers ſhe dares her to the pretended fight.

Of the Camels.

Camel both tame and wilde,

THe *Camell* is a very domeſticall and gentle beaſt, and which is eaſily tamed and taught all kind of obedience and ſervice ; although ſome of them are cruell wilde and troubleſome by biting and ſtriking ſuch as they meet, no leſſe than untamed horſes. There is no neede to houſe them in the night, for they may be left in the plaine fields in the open and free aire,feeding upon the graſſe and trees and cropping the tops of the thiſtles, neither in the morning doe they any whit the worſe undergoe or carry their burdens. They are not put to carry burdens before they be foure yeare old. The Arabians geld them young, that they may enjoy their labour the longer, neither being gelt doe they rage for love or deſire of venery. At the putting in of the Spring they endure hunger and thirſt for eight dayes; they are ſo dutifull,that at the becke of the Turkiſh ſlaves, or but touched on the necke with a twigge, they preſently kneele on the ground to take up their burden, neither doe they lift themſelves up before that they finde they have a ſufficient load layd upon them. Thoſe which have but one bunch on their backe are of Africke ; but ſuch as have two bunches are of Aſia, or Scythia. Thoſe kinde of *Camels* that are the bigger are uſed to carry packes, but the leſſer are uſed to ride upon, as our horſes are. They love nothing ſo well as beanes, and yet they live content with foure handfulls of beanes for a day. The greateſt wealth of the Arabians conſiſts in *Camels*, and ſo they eſtimate their riches, not by the quantity of ſilver, or gold, but by the number of *Camels*. The Turkiſh Emperour (*Thevet* being the reporter) made a Captaine over the heards of his *Camels*, giving him a great troope, of African and Chriſtian ſlaves, that they might be the better looked unto. I have heard it reported (ſaith *Thevet*) by certaine Arabian, African and Iewiſh Merchants who were preſent, at that time when *Sultan Selim* the firſt of that name, beſeiged

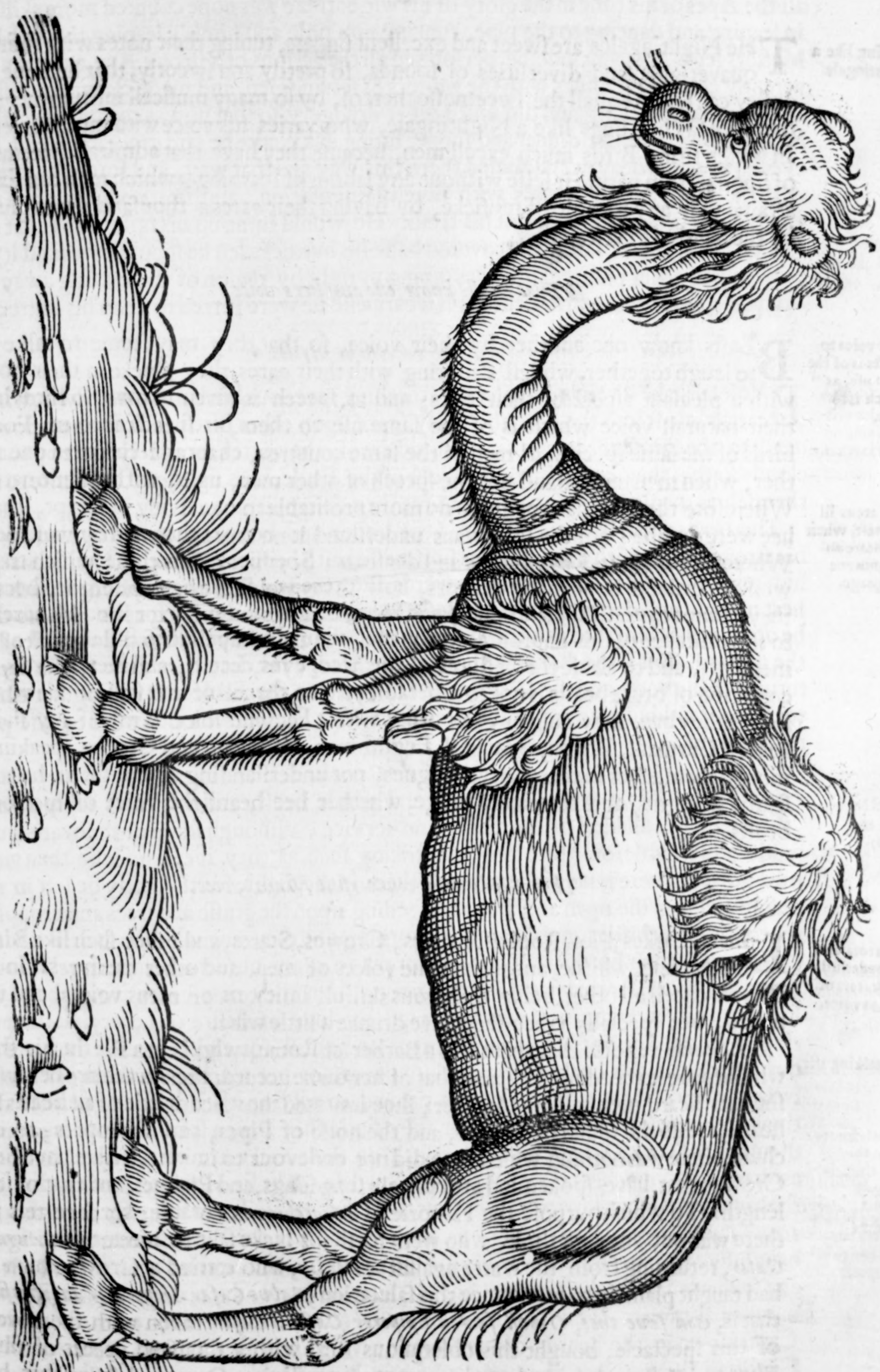
The eaſie and not chargeable keeping of Camels.

Camels know when they have a ſufficient loade.

Camels both to carry burdens and to ride upon.

beſeiged Caire in Ægypt (which in former times was called *Memphis*) that there

Mighty troop of Camels.



was then in that Emperours army ſixtie thouſand Cammels, beſides a mighty company of Mules.

That Birds have taught us muſicall tunes.

To ſing like a Nightingale

THe Nightingales are ſweet and excellent ſingers, tuning rheir notes with infinite quaverings, and diverſities of ſounds, ſo pretily and ſweetly, that humane induſtry can ſcarſe equall the ſweetneſſe thereof, by ſo many muſicall inſtruments; ſo that wee ſay hee ſings like a Nightingale, who varies his voice with much varietie. In which thing Birds much excell men, becauſe they have that admirall ſweetneſſe of ſinging from nature it ſelfe without any labour of learning; which men can ſcarſe attaine to in any ſchoole of muſicke, by having their eares a thouſand times pluckt by the hand of a curſt maſter.

That Beaſts know one anothers voice.

The voice to beaſts is of the ſame uſe, as ſpeech is to men.

BEaſts know one another by their voice, ſo that they may ſeeme to talke and to laugh together, whileſt flattering with their eares, they plucke in their noſes, with a pleaſant aſpect of their eyes; and as ſpeech is given to men, ſo Birds have their naturall voice which is of the ſame uſe to them, as ſpeech is to us. For all birds of the ſame ſpecies, as men of the ſame countrey, chant and chirpe to one another, when men underſtand not the ſpeech of other men, unleſſe of the ſame nation. Wherefore the Scythian tongue is no more profitable to one living in Egypt, than if hee were dumbe; nor the Egyptians underſtand it no more than if they were deafe. Wherefore an Egyptian is dumbe and deafe to a Scythian. This thoſe which travell well underſtand how many dangers, how many troubles they undergoe, becauſe they cannot expreſſe their mindes, and require things neceſſary for life. Wherefore to the aſſiſtance of this unprofitable tongue, we are compelled to call the reſt of the members, and to abuſe the geſtures of the head, eyes, hands, and feete. Truly the condition of brute beaſts is not ſo miſerable, ſeeing that all of the ſame kinde whereſoever they bee, may anſwer each other with a knowne voice. Truly if any ſhould heare a Germane, Briton, Spaniard, Engliſhman, Polonian, and Greeke, ſpeaking amongſt themſelves in their native tongues, not underſtanding any of them, he could ſcarce diſcerne, and certainely judge, whether hee heard the voice of men or of beaſts.

We are as ill as deafe, when we heare an unknowne language.

That Birds may counterfeit Mans voice.

Parrots are wonderfull imitaters of mans voice.

LInets, Larkes, Pies, Rookes, Dawes, Crowes, Stares, and other ſuch like Birds, ſpeake, ſing, whiſtle, and imitate the voices of men, and other creatures. In this Parrots excell all other, being wondrous ſkilfull imitaters of mens voices, and very merry, but ſpecially when they have drunke a little wine.

A talking Pie.

Plutarke reports that there was a Barber at Rome, who kept a Pie in his ſhop, which ſpoke exceeding well, and that of her owne accord, none teaching her, when ſhe firſt heard men talking together; ſhee imitated the voice or crie of all beaſts ſhee heard, as alſo the ſound of Drums, and the noiſe of Pipes, and Trumpets; to conclude, there was nothing which ſhee did not endevour to imitate. There have beene Crowes that have ſpoken and articulately ſung ſongs, and Pſalmes, and that of ſome length. To which purpoſe the Hiſtorie of *Macrobius* is notable; for hee tels that there was one amongſt thoſe, who went forth for lucke ſake to meete with *Auguſtus Cæſar*, returning from the warre againſt *Antonius*, who carried a Crow, which hee had taught plainely to pronounce this ſalutation; *Salve Cæſar Imperator auguſtiſſime*, that is, *God ſave thee, O moſt ſacred Emperor Cæſar*. *Cæſar* taken with the noveltie of this ſpectacle, bought this obſequious Bird with a thouſand peeces of ſilver. *Pliny* and *Valerius* have reckoned up amongſt prodigies, Oxen and Aſſes that have ſpoken. I omit infinite other things recorded by the ancients, *Plato, Ariſtotle Pliny, Plutarch*, and other Philoſophers of great credite, of the docilitie of beaſts, and their

Lib.2.Saturn. cap.4.

admirable felicity of underſtanding. Which things, if untrue, theſe learned men would never have recorded in writing, leſt ſo they might brand with vanity, (then which nothing is more baſe,) the reſt of their writings to poſterity in all enſuing ages.

Of the Sympathy and Antipathy of Living creatures amongſt themſelves.

HAving briefly deſcribed the underſtanding of brute beaſts, it ſeemes not impertinent to ſet downe ſome things more worthy of knowledge, happening unto them by reaſon of Sympathy and antipathy; that is, mutuall agreement and diſagreement, which happens not onely to them living, but alſo dead, by a certaine ſecret and hidden propertie, through occaſion whereof ſome deſire, other ſhun, and others proſequute one another even to death. In teſtimony whereof; The Lyon the king of beaſts excelling all other in courage and magnanimitie, feares the Cocke, for he is not onely terrified by his preſence, but alſo by his crowing being abſent. So an Elephant feares a Hogge; but hee is ſo affraid of Mice and Ratts, that he will not touch the meat that is given him, if hee ſmell that it hath beene defiled with ſuch creatures. There is deadly hatred betweene the Elephant and Rhinocerot; yet when the Elephant is furious and angry, hee becoms quiet and calme at the ſight of a Ram. A horſe is ſo afraid of a Camel, that he cannot endure his ſight. The Dog hates the Wolfe, the Hart flyes the Dogge. The Snake flyes from and feares a naked man, and followes him being clothed. There is deadly hatred between the Aſpis and Ichneumon, for he when he hath rowled himſelfe in the clay, dryes himſelfe in the Sunne, and ſo being covered over (by doing thus diverſe times) as it were with ſhells, or armour, he enters into Combat, ſtretching out his taile and preſenting his backe, untill he get opportunity to choake his adverſary, by leaping and faſtening on her jawes, by which ſtratageme he alſo kills the Crocodile. The green Lizard is a capitall enemy to the Serpent, but moſt friendly to man, as *Eraſmus* witneſſeth by many hiſtoryes concerning that matter, in his dialogue of Sympathy and Antipathy. There is a great deale of hatred betweene a man and a Wolfe, which is moſt manifeſt by this, that if the Wolues firſt ſee a man, his voyce is taken away, and his intended cry hindred. If the Weaſell intend to ſet upon the Aſpis that moſt venemous Serpent, ſhee armes her ſelfe by eating Rue, as a moſt certaine Antidote. The Ape feares the Torpedo, as *Eraſmus* manifeſts by a pleaſant hiſtory in the fore mentioned Dialogue; where alſo he pretily ſhewes the deadly hatred betweene the Serpent called Areus and the Toad. The like hate is between the Owle and Crowes, ſo that the Owle dares not go out, fly abroad, or ſeeke her food unleſſe by night. The water or River fowle are afraid of the *Falcon*; that if they but heare her bells, they had rather be killd with ſtaves and ſtones, than take wing to fly into the aire. So the Larke yeelds her ſelfe to be taken by a man, leaſt ſhe fall into the tallents of the Hobby. The Caſtrill, or Merlin is naturally a terrour to Haukes, ſo that they both ſhun his voyce and preſence.

The Lion feares a cocke.

A horſe feares a Camell

Water fowle feare the Falcon.

The Kites are all at perpetuall enmity with the Crowes, wherefore the Crow alwayes gets away the Kites proviſion. All kind of Pullen feare the Foxe. The Chicken feares neither a Horſe, nor an Elephant, but ſcarſe hatched, it preſently runs away at the voyce or ſight of a Kite, and hides it ſelfe under the hens wings. The Lambe and Kid flye from the Wolfe when they firſt ſee him, nether doth death give an end to that hatred, but it ſuperviues their funerall. An Experiment whereof (they ſay) is, that if one drum be headed with Wolves ſkinnes and another with Sheepes, and beaten up together, you ſhall ſcarſe heare the ſound of the Drum covered with ſheepes skins. And beſides, if you ſtring one Harpe with ſtrings made of ſheepes gutts, and another with ſtrings of Wolues gutts, you cannot bring it to paſſe, by any Arte, to make them agree and goe in one tune. It is reported from the experiments of many men, that if a Wolues head be hanged up on high in the place where Sheepe are, that they will not touch the graſſe how good and freſh ſoever it be, nor reſt quiet in any place, but tumultuouſly runne up and downe, untill all ſuch kinde of terrour be taken away; The hate

The enmity betweene the Kites and Crowes.

The diſcord between the Lambe and Wolfe is not ended by deal.

How to make cheeſe that Mice will not gnaw.

betwixt Mice and Weaſells appeares by this, that if you mixe never ſo little of the braines of a Weaſell in the rennet, with which you crudle you Cheeſe, the Mice will never gnaw or touch that cheeſe. The Linnet doth ſo hate the bird *Florus*, that both their bloods put into one veſſell cannot be mixed together. A Wolues head hung up in a dovehouſe, drives away Poll-Cats and Weaſells. The Panther and Hyæna burne with ſo great hatred, that if both their skins be laid one againſt the other, the Panthers will ſhed the haire, the haires of the Hyæna remaining entire and not moved; which thing, they ſay, happens to the feathers of other birds if any one chance to tye them up in a bundle with the Eagles. Let theſe ſuffiſe for ſome few examples of many, of the Antipathy amongſt beaſts. But of the Sympathy, and conſent of beaſts amongſt themſelves, I thinke needleſſe to write any thing, being it is ſufficiently knowne to all, that one Iay aſſociates another, and the cruell Beares agree amongſt themſelves; and beaſts of the ſame ſpecies doe wonderfully conſent one with another.

That Man excells all beaſts.

Man beares Gods image.

Man hath given names to things.

I Now thinke it fit to aſſay to write of that excellency of man over beaſts, which I have ſo long intended. Neither would I that Epicures and other too much naturall and materiate Philoſophers, ſo take thoſe things I haue written of the endowments of beaſts, as though we ſhould thinke, there were no difference betweene man and beaſt. I had no ſuch meaning, no ſuch intention; but onely that man ſhould not become too ſtately, or too ingrate in leſſe acknowledging God to be the Author of ſo many benefits with which he abounds. For whatſoever we have largely ſpoken of beaſts, yet there is no compariſon betweene beaſts and man, for there is too great a difference betweene them. For mans minde is adorned with religion, juſtice, prudence, magnanimitie, faith, piety, modeſty, clemency, fortitude and other vertues as lights, which ſhine much more bright in man than in beaſts. For they are ſometimes all in ſome one man, each whereof are thought great in beaſts. For ſeeing that man is made to the Image of God, it cannot be, how much ſoever he defile himſelfe with the pollution of vices, that he can ſo obſcure that inbred light, but that alwayes ſome beame of the divine wiſedome will be inherent and ſhine in him. But although by collation to ſome beaſts, hee may ſeeme a defective and weake Creature; yet no fortitude nor ſtrength of beaſts can be ſo great as to equall the fortitude of man. For God hath engraven in man the character of his divine virtue, by the aſſiſtance whereof, he might have all beaſts under and obedient to him. And though by that we have formerly ſaid, beaſts may ſeeme to have a certaine ſhadow of reaſon, yet that ſmall light is not fit for many and diverſe uſes, but there is onely given them ſo much providence, as ſhould be ſufficient for them and the preſervation of their bodyes. But men have reaſon given them to crop or gather the fruits of eternall life, (as *Lactantius* ſaith) whereby it comes to paſſe, that man onely, amongſt ſo many creatures, hath ſenſe and underſtanding of divine things. Which *Cicero* thought to be knowne by that, becauſe man onely had a certaine knowledge of God in his mind. Wherfore he was enriched by God with reaſon, ſpeech and hands as helps for the performance of all his actions; moreover by his ſingular and almoſt divine wit he eaſily excells all brute beaſts. For firſt, reaſon being his guide, he invented things neceſſary for life, fitly impoſed names on the things invented befitting their natures, framed letters and Characters, invented all liberall Arts and handy-crafts, and found meanes to meaſure the Land and Sea. Hee hath obſerved and drawne into an Arte the ſpaces of the Celeſtiall Globe, the diſtinctions of the Starres, the changes and orders of dayes and nights, of times and ſeaſons, the riſings and ſettings of Starres, and their power and effects over theſe lower bodyes. Laſtly, he records in writing to perpetuall memory that which concernes his owne nature, or the nature of other things, the precepts and ordinances of life and manners, by which ſingular gift, we can now conferre with *Socrates*, *Plato*, *Ariſtotle*, and other Philoſophers of ancient times, as if they were living.

What

What benefit man hath by reaſon of his native nakedneſſe and ignorance.

BVt as Mans body is by nature naked and unarmed, ſo is his minde like a ſmoth table in which nothing is painted, nothing graven; but for helpe of his nakedneſſe he hath hands, and for ſupply of his ignorance, reaſon and ſpeech. And by theſe three being as it were the miniſters of infinite varietie of things, he clothes and defends his body with all things needful: & inriches his minde with the knowledge of Arts & ſciences. Now if he had certaine weapons borne with him, he ſhould uſe them only; if he ſhould be borne skilfull in any Arte, he would meddle with none elſe. Therefore becauſe it was more expedient to uſe all ſorts of weapons with the hand, and be skilfull in all Arts; therefore he muſt be borne wanting and ignorant of all. *Ariſtotle* very wittily called the hand the inſtrument of inſtruments: in imitation of which ſpeech, one may rightly affirme, That Reaſon is the Arte of Arts: for as the hand in worth exceeds the other inſtruments, becauſe it can make, handle and fit them for uſe; ſo reaſon and ſpeech, though names of no Arte, yet comprehend and encreaſe all Arts. Therefore man ſeeing he hath his minde inſtructed by Arte, that is, by reaſon; it is fit he ſhould have his body defended with a weapon, or inſtrument, that is, the hand, which in agility and excellency ſhould excell all other inſtruments. For ſo Man hath his hands in ſtead of all weapons, which he may uſe in warre and peace as the inſtruments of all Arts; he wants not the Bulls hornes, the Boares tuskes, the horſes hoves, nor to conclude, any armes of any other beaſt. For by the benefit of his hands he can handle other armes farre more profitable and ſafe, as a Lance, Sword, Speare, halberd; but man alſo can uſe at ſome diſtance the bow, ſling and handgun, when the horne and the hooſe cannot be uſed but neer at hand. But ſome may ſay; A Lion exceeds a man in ſwiftnes of foot; what then? is man therefore inferiour to him? no for by the meanes of his hands and the guidance of his reaſon he bridling and riding upon a horſe, out runs the Lyon, and being victor followes him to and againe as he himſelfe pleaſes, or vanquiſhed flyes away, and from the horſes backe as from a tower wounds the Lyon with what weapons he pleaſes. To conclude, man is aboundantly provided with meanes, to defend himſelfe from the violence of all other beaſts. For this purpoſe he doth not onely harneſſe himſelfe as with braſen walles, but alſo makes ditches and Bulwarkes; he makes by the miniſtery of his hands all kind of weapons, weaves himſelf graments, caſts into the water and drawes forth nets to catch fiſh; and to conclude, he performes all things to his owne contentment, and having that priuiledge granted him by God, he rules over all the earth; all things which lye hid in the bowells of the earth, which goe, or creepe upon the earth, which ſwim in the ſea, and fly through the aire, or are any where ſhut up in the compaſſe of the skie, are in mans dominion.

Gal. cap. 4. lib. 1. de uſu partium.

As the hand is the inſtrument of inſtruments ſo Reaſon is the Arte of Arts.

Man under God is the king and Emperour of the world.

How wonderfull God hath ſhewed himſelſe in making man.

GOds Deity and providence hath principally ſhewed it ſelf in the creation of man; neither his ſo admired light hath ſo ſhone in the production of other creatures, ſeeing that God would have them to live and have their being, onely for mans ſake, that they might ſerve him. Therefore man is, if we diligently conſider all his endowments, a certaine patterne and rule of the divine majeſty & (if If I may ſo ſay) Artifice. For being made to Gods image, he is as it were his coine, exceeding the capacity of all humane underſtanding. Which ſeemed a juſt reaſon to the ancient Philoſophers, that he ſhould be called *Micrecoſmos*, or a litle world, becauſe the particles of all things conteined in the compaſſe of heaven and earth, are contained in his minde and body, that in the meane time I may in ſilence paſſe over his ſoule more great and noble than the whole world.

Men is the end of all mundane things.

Man a litle world, yea almoſt a great world.

Why Nature hath not given Man the facultie of perſaging.

Man is not obnoxious to the Aire and ſtars.

One man will counterfeit the voyces of infinite varieties of beaſts.

THis ſeemes the reaſon, that men by the inſtinct of nature doe not foreſee the future ſeaſons and diſpoſitions of the heaven and aire; becauſe, ſeeing they have received certaine ſparks of prudence from God, by whoſe care and guidance they are led to the knowledge of things by no deceiptfull but certaine judgment, being not obnoxious to the conditions and changes of times and ſeaſons, as beaſts are. Wherefore knowing all theſe airy changes to be placed under them, that is to ſay their minds, according as occaſion ſerves, and their minds deſire, they give themſelves to mirth when the Aire is wet, ſtormy and darke, and on the contrary in a cleare and faire ſeaſon to a ſincere and grave meditation of things ſublime & full of doubt. But beaſts accommodating themſelves to that diſpoſition of the aire which is preſent & at hand, are lively, or ſad, not from any judgment as men, but according to the temper and cōplexion of their bodies following the inclinations of the aire, and of the humors one while diffuſed, another while contracted. Neither ought we to blame man, becauſe he can imitate the voyce of beaſts, but rather much commend him, that he can infinitely wreſt and vary one thing, that is his voyce; for men can barke like Foxes and doggs, grunt like hogs; whet and grinde their teeth like boares; roare like Lyons; bellow like Bulls; neigh like horſes; knacke their teeth like Apes; houle like Wolues; bray like Aſſes; bleate like Goats and Sheepe; mourne like Beares, Pigeons and Turtles; Keeke and gaggle like geeſe; hiſſe like Serpents; cry like Storkes, caw like a Crow, and crow like a Cocke, clocke like Hennes; chatter as Swallowes and Pyes; ſing like Nightingales; croake like Frogs; imitate the ſinging of Waſpes and Humming of Bees; Mew like Catts. The ſinging of Birds ſcarſe ſeemes to merit the name of Muſicall, compared to the harmony of men fitted and tuned with infinite variety of voyces. For with this they poſſeſſe the eares of Kings and Princes; provoke and temper their wrath, and carry mens minds beyond themſelves, and tranſforme them into what habits they pleaſe. But if thoſe cruell beaſts have any humanitie, they owe it all to man. For he tames Lyons, Elephants, Beares, Tigers, Leapards, Panthers and ſuch other like.

The power of Muſicke.

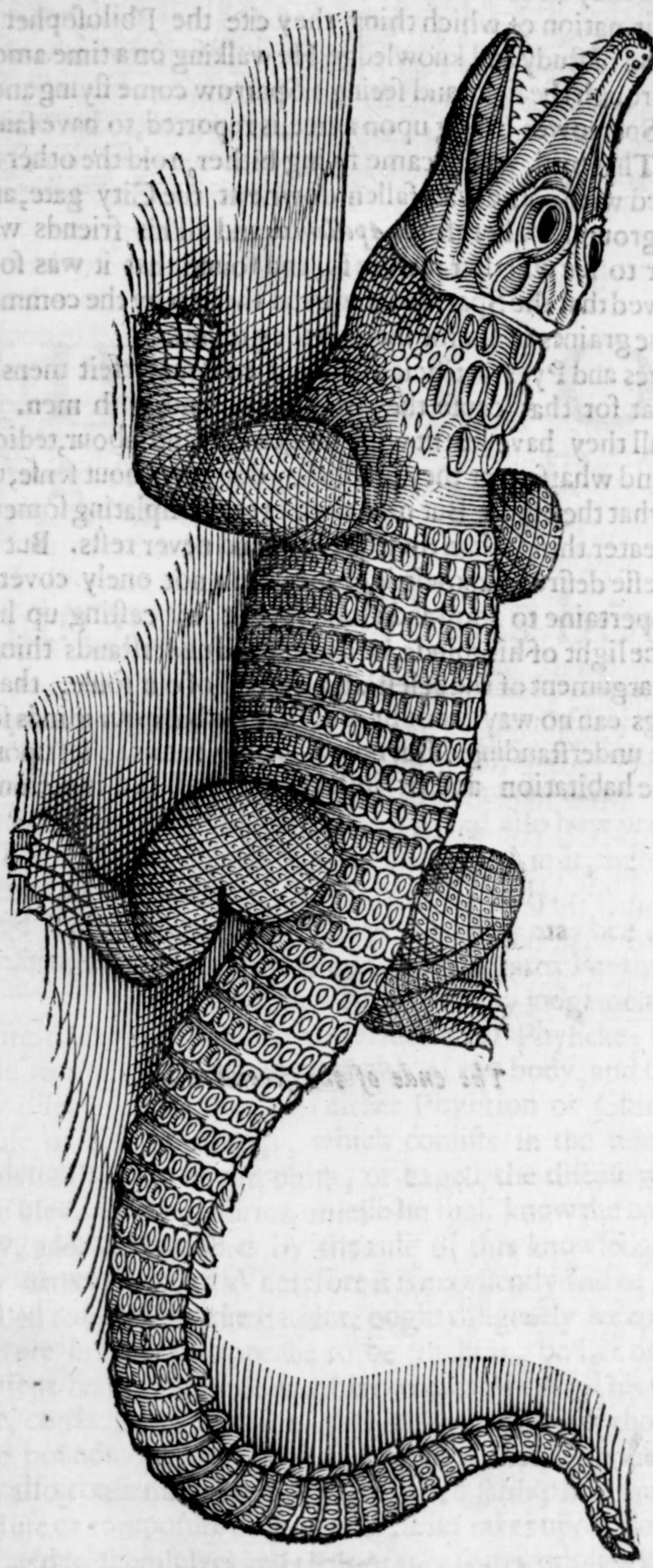
Of the Crocodile.

A tame Crocodile.

PLutarch reports of the *Crocodile* (whoſe figure is here deliniated) that being tamed, and taught by man, hee doth not onely heare mans voyce, and anſweres to his call, but ſuffers himſelfe to be handled, and opening his throate, lets his teeth be ſcratched and wiped with a towell. How ſmall a part of Phyſicke is that, which beaſts are taught by nature? Certainely nothing in compariſon of man, who by the ſtudy and practiſe of a few yeares can learne at his fingers endes all the parts of Phyſicke: and practiſe them not onely for his owne, but alſo for the common good of all men. But why cannot beaſts attaine unto the knowledge of Phyſicke ſo well as men? I thinke, becauſe ſo great an Arte as Phyſicke is, cannot be attained unto by the dull capacities of Beaſts.

In what ſenſe we ſaid Elephants had religion.

But for that I have written of the Religion of Elephants, if I muſt ſpeake according to the truth of the matter, wee cannot ſay they worſhip God, or have any ſenſe of the divine Majeſty. For how can they have any knowledge of ſublime things or of God, ſeeing they wholy following their foode, know not how to meditate on celeſtiall things? Now for that they behold and turne themſelves to the Moone by night, and to the Sunne in the morning, they doe not that as worſhipping, or for that they conceive any excellency or divinitie in the Sunne; but becauſe nature ſo requiring and leading them, they feele their bodyes to rejoyce in that light, and their entralls and humors to move and ſtirre them to it. Therefore when we attributed religion to Elephants, we ſaid it rather popularly, than truely, and more that we might exhort men to the worſhip of God,



than that we thought Elephants had any knowledge of divine worſhip implanted in their mindes.

That man may attaine unto the knowledge of all voyces and tongues.

THe docility of mans wit is ſo great, and the facillity of the body obeying that divine gift of wit ſuch, that he is not onely able to learne to underſtand and ſpeak

Man not onely the imitater, but the interpreter of the voices of beaſts and birds.

the tongues of diverſe nations differing in ſo many peculiar languages; and not only to imitate and counterfeit the voyces of all beaſts though ſo much different from man, which many flattering and jugling companions, followers of other mens tables, will doe; but alſo may be able to know and underſtand both what they pretend and ſignifie. In confirmation of which thing they cite the Philoſopher *Apollonius* moſt famous in this kind of ſtudy and knowledge. He walking on a time amongſt a company of his friends thorough the field, and ſeeing a Sparrow come flying and chirping much to diverſe other Sparrowes ſitting upon a tree, is reported, to have ſaid to thoſe which were with him: That bird, which came flying hither, told the other in her language; that an Aſſe laided with corne was fallen downe at the City gate, and had ſhed the wheat upon the ground. Wherefore *Apollonius* and all his friends which were with him went thither to ſee whether it were ſo, and found that it was ſo, as he had told them, and obſerved that the Sparrowes moved thereto by the comming of the other, were eating up the graines of Corne ſhed on the ground.

The unquenchable deſire of learning in man.

But for Crowes and Pyes artificially taught to counterfeit mens voyces, it is too ſmall a thing, that for that cauſe they ſhould contend with men. For they have quickly babled all they have learnt with longer coſt and labour, tediouſly ſinging ſtill the ſame ſong, and whatſoever they prate they doe it without ſenſe, underſtanding or any reaſon for what they ſay. But man alwaies contemplating ſomewhat more high, ſtill thinkes of greater things than theſe preſent, and never reſts. But burning with an infinite and endleſſe deſire of knowledge, hee doth not onely covet to know theſe things which appertaine to food and clothing, but by caſting up his eyes towards heaven, and by the light of his minde, he learnes and underſtands things divine. Which is ſo certaine an argument of the celeſtiall originall of our ſoule, that hee which conſiders thoſe things can no wayes doubt, but that we have our minds ſeaſoned, by the univerſall divine underſtanding. But now it is time for us to ſet upon the deſcription of the body, the habitation and fit inſtrument of all the functions of that divine minde.

The ende of the ſecond Booke.

THE THIRD BOOKE TREATING OF THE Anatomy of Mans body.

I Following cuſtome and the manner of ſuch as before me have written of Anatomy, will firſt, (that I may make the mindes of the Readers more attentive and deſirous of theſe ſtudies) declare how neceſſary it is, and alſo how profitable, and then ſhew the order to bee obſerved in it, before I come to the particular deſcription of mans body.

The neceſſitie of the knowledge of Anatomy.

Initio lib. de Offic. medici.

Lib. de oſſibus.

1. de loc. affect. & lib. 3. Meth.

Furthermore, how Anatomy may bee defined, and the manner of the definition of the parts. For the firſt, the knowledge of Anatomy ſeemes in my judgement very neceſſary to thoſe that deſire to excell, or attaine to perfection of Phyſicke; that is, whereby they may be able to preſerve the preſent health of the body, and the parts thereof, and drive away diſeaſes. For how can either Phyſition or Chirurgion preſerve health by the uſe of the like things, which conſiſts in the temperament, conformation, and naturall union of the parts; or expell the diſeaſe which hurts thoſe three, by the like uſe of their contraries, unleſſe he ſhall know the nature and compoſure of the body, and underſtand as by the rule of this knowledge, how much it ſwerves from the nature thereof? Wherefore it is excellently ſaid of *Hippocrates*; that the Phyſition called to cure the ſicke Patient, ought diligently to conſider, whether thoſe things that are in him, or appeare to be in him, be like or unlike, that is, whether the Patient be like himſelfe and his owne nature in all his parts and functions, temperature, compoſure and union; that hee may preſerve thoſe which are yet contained in the bounds of nature, and reſtore thoſe that are gone aſtray. Which thing *Galen* hath alſo confirmed, ſpecially where hee ſaith; hee muſt well know the nature and ſtructure or compoſure of the bones, who takes upon him to reſtore them broken or diſlocated to themſelves and their proper ſeates or places. Moreover ſeeing that healing doth not onely conſiſt in the knowledge of the diſeaſe, but as well in preſcribing fit medicines and like application of them to the body and the parts thereof, all which by their naturall diſſimilitude, doe require unlike medicines, according to *Galens* opinion: I prethe tell mee, who can performe this, which is ignorant of the deſcription of the whole and the parts thereof, taught by Anatomie? We may ſay the like of the Apothecarie, who ignorant of the ſcituation of the parts in the body, cannot apply Emplaiſters, Ointments, Cataplaſmes, Fomentations, Epithemes, bagges to the fit places, as to the ſutures of the skull, to the Heart, Liver,

Stomacke,

Why when the liver is hot, the ſtomacke is commonly cold.

Stomacke, Spleene, Reines, Wombe or Bladder. For example, let us imagine the Liver to be troubled with a hot diſtemperature, but on the contrary the ſtomacke with a cold (which commonly happens, ſeeing the Liver hotter than it ought to be, ſends up many vapours to the head; from whence cold humors fall into the ſtomacke) if hot things to be applied to the ſtomacke by the Phyſitions preſcription, be by the Apothecarie making no difference, applied both to the ſtomacke and neighbouring Liver (which may chance if hee be ignorant that the ſtomacke bends ſomewhat to the left ſide under the breaſt-blade; but the liver ſo takes up the right ſide of the body that with a great parr thereof, it covers almoſt all the ſtomacke) will not he much offend by encreaſing the hot diſtemper of the liver, and not thereby giving eaſe, or helpe to the diſeaſe? Shall not by this his ignorance, the Patient be fruſtrated of his deſire, the Phyſition of his intent, and the medicine of its effect? By theſe examples I thinke it moſt manifeſt, that the Anatomicall knowledge of the parts of the body is exceeding neceſſary to all Phyſitions, Chirurgions, and Apothecaries, who will practiſe Phyſicke with any praiſe to the glory of God, and the benefit and good of man, for whoſe ſake wee have writ theſe things, and illuſtrated them by figures, ſubjecting the parts to the eye, and fitly put them in their proper places,

The knowledge of Anatomy, is commodious foure manner of wayes.

But Anatomy is commodious foure manner of wayes; the firſt is, becauſe thus we are led to the knowledge of God the Creator, as by the effect to the cauſe; for as we reade in Saint *Paul*, The inviſible things of God are made manifeſt by the viſible. The ſecond is, That by meanes hereof wee know the nature of mans body, and the parts thereof, whereby wee may more eaſily and certainely judge and determine of ſickneſſe and health. The third is, that by the knowledge of the body and its parts, and together therewith its affections and diſeaſes, wee may prognoſticate what is to come, and foretell the events of diſeaſes. Laſtly, the fourth is, that conſidering the nature of the diſeaſed part, we may fitly preſcribe medicines, and apply them in their due places.

There is a threefold method.

Now we muſt declare in what order Anatomie may be fitly delivered; but firſt we muſt obſerve there is a threefold Methode; The firſt is called of Compoſition, being very commodious for the teaching of Arts, which *Ariſtotle* hath uſed in his Workes of Logicke, and naturall Philoſophy, the order and beginning taken from the leaſt and moſt ſimple to the more compound. The ſecond of Diviſion, fit for the inventing or finding out of ſciences. *Galen* hath followed this order in his Bookes of Anatomicall Adminiſtrations, and of the uſe of the parts. The third of Definition, which ſheweth the nature and eſſence of things, as appeares by *Galen* in his Booke *De Arte parva*. And becauſe this order doth alſo proſecute the diviſions, therefore it is commonly accuſtomed to bee comprehended in the compaſſe of the ſecond.

The Authors intent.

Therefore I will follow this in my Anatomicall Treatiſe, deviding mans body into its parts, which I will not onely ſubject to the eye in the way of knowing them, but alſo to the minde in the faithfull underſtanding them. For I will adjoyne thoſe things that are delivered of them by *Galen* in his Booke of Anatom. Adminiſtrations, with thoſe which hee hath taught in his Bookes of the uſe of the parts. For there hee fitly laies the parts of mans body before our eyes, to the ſenſe. But here he teaches to know them, not to ſee them; for hee ſhewes why, and for what uſe they are made. Having briefely handled theſe things, wee muſt declare what Anatomy is; that as *Cicero* ſaith out of *Platoes Phædro*, it may be underſtood of what we diſpute. And becauſe we attaine that by definition (which is a ſhort and plaine ſpeech, conſiſting of the *Genus* and difference of the things defined, being the eſſentiall parts, by which the nature and eſſence of the thing, is briefly and plainely explained) firſt we define Anatomy, then preſently explaine the particular parts of the definition.

What Anatomie is.

Wherefore Anatomy, (if you have regard to the name) is a perfect and abſolute deviſion, or artificiall reſolution of mans body into its parts, as well generall as particular, as well compound as ſimple. Neither may this definition ſeeme illegitimate, ſpecially amongſt Phyſitions and Chirurgions. For ſeeing they are Artizans humiliated to the ſenſe, they may uſe the proper and common qualities of things for their eſſentiall differences and formes. As on the contrary, Philoſophers may refuſe all definitions as ſpurious, which conſiſt not of the next *Genus* and the moſt proper, and eſſentiall

How a definition differs from a deſcription.

ſentiall differences. But ſeeing that, through the imbecilitie of our underſtanding, ſuch differences are unknowne to us, in their places we are compelled in defining things, to draw into one many common and proper accidents, to finiſh that definition which we intend, which for that cauſe wee may more truly call a deſcription, becauſe for the matter and eſſentiall forme of the thing, it preſents us onely the matter adorned with certaine accidents. This appeares by the former definition, in which *Diviſion* and *Reſolution* ſtand for the *Genus*, becauſe they may be parted into divers others, as it were into *ſpecies*. That which is added over and beſides, ſtands in place of the difference, becauſe they ſeparate and make different the thing it ſelfe from all other raſh and unartificiall diſſections. We muſt know an artificiall diviſion, is no other than a ſeparation of one part from another, without the hurt of the other, obſerving the proper circumſcription of each of them; which if they periſh or be defaced by the diviſion, it cannot be ſaid to be artificiall; and thus much may ſuffice for the parts of the definition in generall.

For as much as belongs to the explication of each word; we ſaid *of Mans body*, becauſe, as much as lies in us, we take care of, preſerve the health, and depell the diſeaſes thereof, by which it may appeare that mans body is the ſubject of Phyſicke, not as it is mans, or conſiſts of matter and forme, but as it is partaker of health and ſickneſſe.

The Subject of Phyſicke.

Wee underſtand nothing elſe by a part, according to *Galen*, than ſome certaine body, which is not wholy disioyned, nor wholy united with other bodies of their kindes; but ſo that, according to his opinion, the whole being compoſed therewith, with which in ſome ſort it is united, and in ſome kinde ſeparated from the ſame, by their proper circumſcription. Furthermore by the *parts in generall*, I underſtand the head, breaſt, belly, and their adjuncts. By the particular parts of thoſe, I underſtand, the ſimple parts, as the ſimilar, which are nine in number, as a griſtle, bone, ligament, membrane, tendon, nerve, veine, arterie, muſculous fleſh; ſome adde fibers, fat, marrow, the nailes and haires; other omit them as excrements; but wee muſt note that ſuch parts are called ſimple, rather in the judgement of the ſenſe, than of reaſon. For if any will more diligently conſider the nature, they ſhall finde none abſolutely ſimple, becauſe they are nouriſhed, have life and ſenſe, either manifeſt or obſcure, which happens not without a nerve, veine, and artery.

Gal lib. 1. de vſu part. lib. 1. Meth.

The ſimular parts are 9.

But if any ſhall object, that no nerve is communicated to any bone, except the teeth; I will anſwer, that neverthele ſſe the bones have ſenſe by the nervous fibers, which are communicated to them by the *Perioſteum*, as by whoſe mediation the *Perioſteum* is connext to the bones, as we ſee it happens to theſe membranes, which involue the bowels. And the bones, by this benefit of the animall ſenſe expell the noxious and excrementitious humors from themſelves into the ſpaces betweene them and the *Perioſteum*, which as indued with a more quicke ſenſe, admoniſheth us, according to its office and dutie, of that danger which is ready to ſeaze upon the bones, unleſſe it be prevented. Wherefore wee will conclude according to the truth of the thing, that there is no part in our body ſimple, but only ſome are ſo named and thought, according to the ſenſe; although alſo otherwiſe ſome may be truly named ſimple, as according to the peculiar and proper fleſh of each of their kindes. Thoſe parts are called compound which are made or compoſed by the mediation, or immediately of theſe ſimple, which they terme otherwiſe organicall or inſtrumentall; as an arme, legge, hand, foote, and others of this kinde.

How the bones come to feele.

The compound, or organicall parts.

And here wee muſt obſerve, that the parts are called ſimple and ſimilar, becauſe they cannot be devided into any particles but of the ſame kinde; but the compound are called diſſimular from the quite contrary reaſon. They are called inſtrumentall and organicall, becauſe they can performe ſuch actions of themſelves, as ſerves for the preſervation of themſelves and the whole; as the eye of it ſelfe, without the aſſiſtance of any other part, ſeeth, and by this faculty defends the whole body, as alſo it ſelfe. Wherefore it is called an inſtrument or organe, but not any particle of it, as the coates, which cannot of it ſelfe performe that act. Whereby wee muſt underſtand, that in each inſtrumentall part we muſt diligently obſerve foure proper parts. One by which the action is properly performed, as the Cryſtalline humour in the eye,

Foure particles to be obſerved in each organicall part.

eye; another without which the action cannot be performed, as the nerve & the other humors of the eye. The third, whereby the action is better and more conveniently done, as the tunicles and muſcles. The fourth, by which the action is preſerved, as the eye-lids and circle of the eye. The ſame may be ſaid of the hand, which is the proper inſtrument of holding, for it performes this action; firſt by the muſcle, as the principall part; Secondly, by the ligament, as a part without which ſuch action cannot be performed. Thirdly by the bones and nailes, becauſe by the benefit of theſe parts, the action is more happily performed. Fourthly, by the veines, arteries and skin, for that by their benifite and uſe, the reſt, and ſo conſequently the action it ſelfe is preſerved.

Foure ſorts of inſtrumentall parts.

But we muſt conſider, that the inſtrumentall parts have a fourefold order. They as ſaid to be of the firſt order, which are firſt and immediately compoſed of the ſimple, are onely the authors of ſome one action, of which kinde are the muſcles and veſſels. They are of the ſecond which conſiſt of theſe firſt ſimple, and others beſides, as the fingers. They are counted of the third rancke, which are compoſed of parts of the ſecond order and ſome beſides, as the hand taken in generall. The fourth order is the moſt compoſed, as the whole body, the organ and inſtrument of the ſoule. But you muſt obſerve, that when we ſay the muſcles and veſſels are ſimple parts, we refer you to the ſenſe and ſight, and to the underſtanding, comparatively to the parts which are more compound; but if any conſider their eſſence and conſtitution, he ſhall underſtand they are truly compound, as we ſaid before. Now it remaines, that wee underſtand, that in each part, whether ſimple or compound, nine things are to bee conſidered, as ſubſtance, quantitie or magnitude, figure, compoſition, number, connexion, (by which name, we alſo underſtand the orginall and inſertion) temperature, action, and uſe; that by the conſideration of theſe things, every one may exerciſe the art of Phyſicke, in preſerving health, curing diſeaſes, or foreſeeing their events and ends.

Nine things to be conſidered in each part.

Why the three principall parts are ſo called.

But alſo wee muſt note, that of the organicall parts, there be three, by whoſe power the body is governed; which for that cauſe they call regent and principall; becauſe they governe all the reſt; they are the liver, heart, and braine. But they are called principall, not onely becauſe they are neceſſary for life (for the ſtomacke, winde-pipe, lungs, reines, bladder, and ſuch like parts perhaps are equally as neceſſary for life) but becauſe from each of theſe three, ſome force, power, and facultie, or alſo matter neceſſary for the whole body, flow over all the body, when no ſuch thing proceeds from the reſt of the parts. For from the liver a matter fit for nouriſhment, is diſtributed by the veines through all the body; from the heart the vitall force diffuſed by the arteries, imparts life to the whole body; from the braine by the nerves a power or facultie is carried through all the parts of the body, which gives them ſenſe and motion.

Lib. de Arte medica.

Galen would have the Teſticles to be of this kinde, not for the neceſſitie of the individuall, or peculiar body, but for the preſervation of the *Species* or kind. And moreover in his book *de Semine* comparing the Teſticles with the heart, he makes them the more noble by this reaſon, that by how much it is better to live well and happily, than ſimply and abſolutely to live, by ſo much the teſticles are more excellent than the heart, becauſe with them wee may live well and pleaſantly, but with this ſimply live, as we ſee by the example of Eunuches, and ſuch as are gelt, by which the Teſticles ſeeme rightly to be accounted amongſt the principall parts; for nature ſeeing it deſired, that this its worke ſhould be immortall, for the attaining of that immortality which it intends, frames thoſe parts, like as prudent founders of a Citie, who doe not onely procure to furniſh their citie with many inhabitants, ſo long as they are in building it, but alſo that it may remaine in the ſame ſtate and condition for ever, or at leaſt for many ages. And yet notwithſtanding of ſo many cities built in the firſt memory of man, there remaines none, whoſe fame and ſtate, together with the builders name is not decaied and periſhed. But this humane worke of nature, ſtands yet ſecure for this many thouſand of yeares, and ſhall endure hereafter, becauſe it hath found a way, by which every one may ſubſtitute another in his place before he depart. Hence it is that all creatures have members fit for generation, and pleaſures inſerted

The uſe and function of the parts ſerving for generation.

in thoſe members, by which they might be inticed to mutuall embraces and copulations. But the mind, which hath dominion over thoſe members, hath an incredible deſire of propagating the iſſue, by which alſo brute beaſts incited, deſire to propagate their kinds for ever. For ſeeing that nature underſtands all theſe her workes conſidered particularly by themſelves, are fraile and mortall, it hath done what it could to recompence that fatall neceſſitie of dying, by a perpetuall ſucceſſion of individuals.

Hitherto we may ſeeme to have aboundantly ſhewed what neceſſitie of knowledge in Anatomy belongs to all Artizans in Phyſicke, and alſo what order is to be obſerved in the ſame. And laſtly, how it is defined, and the reaſon of the parts of the definition. Wherefore it remaines that wee proſecute what wee have taken in hand; which is, that wee ſhew and declare how to know all and every the parts of mans body, how many, and what they be, and to underſtand wherefore they be. For although the true knowledge of Anatomy may be perfected by the ſight of the eye, and touching and handling each part with the hand, yet nevertheleſſe the labour of deſcribing Anatomy is not unprofitable. For by reading, ſuch as have often exerciſed themſelves in the diſſecting of mens bodies may refreſh and helpe their memories, and ſuch as have not, may make plaine and eaſie the way to the underſtanding of diſſections.

CHAP. I.

The Diviſion or partition of Mans body.

BY reaſon the partition of mans body can hardly be underſtood, if the diſtinction of the proper faculties of the ſoule be not underſtood, for whoſe cauſe the body enjoyes that forme (which wee ſee) and deviſion into divers inſtruments; Therefore I thought good in few words to touch that diſtinction of the faculties of the ſoule, for the better underſtanding of the partition of the body which wee intend. Wherefore the ſoule, the perfection of the body, and beginning of all its functions, is commonly diſtinguiſhed and that in the firſt and generall diviſion, into three faculties, which are the Animall, vitall, and naturall. But the Animall is devided into the principall, ſenſitive, and motive; Againe, the principall is diſtinguiſhed into the imaginative, reaſonable, and memorative. And the ſenſitive into Seeing, Hearing, Smelling, Taſting, and Touching. But the motive into progreſſive and apprehenſive. And the vitall is devided into the dilative, and contractive facultie of the heart and arteries, which we know or underſtand by the pulſificke facultie. But the naturall is parted into the nutritive, auctive, and generative faculties; which three performe their parts by the helpe and miniſterie of five other faculties, which are, the Attractive, Retentive, Concoctive, Aſſimulative, and Expulſive.

What the ſoule is, and with how many faculties it is endewed.

After the ſelfeſame manner, the organ or inſtrument of the ſoule, to wit, Mans body, at the firſt diviſion is diſtinguiſhed into three parts, which from their office they call Animall, vitall, and naturall. Theſe againe, according to the ſubdiviſion of the ſubalternall faculties, are devided particularly into other parts; ſo that any one may know the organe of each facultie, by the propertie of the function. For while other Anatomiſts devide mans body into foure univerſall and chiefe parts, they diſtinguiſh from the three firſt, thoſe which they call the Extremities; neither doe they teach to what rancke of the three prime parts each extremitie ſhould be reduced. From whence many difficulties happen in reading the writings of Anatomiſts; for ſhunning whereof, we will proſecute, as wee have ſaid, that diſtinction of mans body, which we have touched before.

All the parts of mans body are diſtinguiſhed into three.

Wherefore, as wee ſaid before, mans body is devided into three principall and generall parts, Animall, Vitall, and Naturall. By the Animall parts, wee underſtand not onely the parts pertaining to the head, which are bounded with the crowne of the head, the coller-bones, and the firſt *Vertebra* of the breaſt, but alſo the extremities,

What parts are here called Animall.

Lib,6,Epidem,

ties, becauſe they are organs and inſtruments of the motive facultie; *Hippocrates* ſeemes to have confirmed the ſame, where hee writes; Thoſe who have a thicke and great head, have alſo great bones, nerves, and limbs. And in another place hee ſaith, thoſe who have great heads, and when they ſtoope ſhew a long necke, ſuch have all their parts large, but chiefly the animal. Not for that *Hippocrates* would therefore have the head the beginning and cauſe of the magnitude and greatneſſe of the bones, and the reſt of the members; but that he might ſhew the equallity, and private care or government of nature, being moſt juſt and exact in the fabricke of mans body, as if ſhe hath well framed the head, it ſhould not be unlike, that ſhee idlely or careleſly neglected the other parts which are leſſe ſeene. I thought good to dilate this paſſage, leaſt any might abuſe that authoritie of *Hippocrates*, and gather from thence, that not onely the bones, membranes, ligaments, griſtles, and all the other animall parts, but alſo the veines and arteries depend on the head as the originall. But if any obſerve this our diſtinction of the parts of the body, he will underſtand wee have a farre other meaning.

What parts are called vitall,

The deviſion of the animall parts.

The deviſion of the vitall parts.

The deviſion of the naturall parts.

By the vitall parts, we underſtand onely the heart, arteries, lungs, winde-pipe, and other particles annexed to theſe. But by the naturall, wee would have all thoſe parts underſtood which are contained in the whole compaſſe of the *Peritonæum* or Rim of the body, and the proceſſes of the *Erythroides*, the ſecond coate of the Teſticles. For as much as belongs to all the other parts, which we call containing; they muſt be reckoned in the number of the animall, which notwithſtanding, we muſt thus devide into principall, ſenſitive, and motive; and againe, each of theſe in the manner following. For firſt the principall is devided into the imaginative, which is the firſt and upper part of the braine, with its two ventricles and other annexed particles; into the reaſoning, which is a part of the braine, lying under the former, and as it were the toppe thereof with its third ventricle. Into the memorative, which is the *cerebellum* or afterbraine, with a ventricle hollowed in its ſubſtance. Secondly, the ſenſitive is parted into the viſive, which is in the eyes; the auditive, in the eares; the ſmelling, in the noſe; the taſting, in the tongue and palate; the tactive, or touching which is in the body, but moſt exquiſite in the skinne which inveſts the palmes of the hands. Thirdly, the motive, is devided into the progreſſive, which intimates the legges, and the comprehenſive, which intimates the hands. Laſtly, into ſimply motive, which are three parts, called bellies, for the greateſt part terminating and containing; for the vitall, the inſtrument of the faculty of the heart, and dilatation of the arteries, are the direct or ſtreight fibers, but of the conſtrictive the tranſverſe; but the three kinds of fibers together, of the pulſificke; or if you pleaſe you may devide them into parts ſerving for reſpiration, as are the lungs, and weazon, and parts ſerving for vitall motion, as are the heart and arteries, furniſhed with theſe fibers, which we formerly mentioned. The deviſion of the naturall parts remaines, which is into the nouriſhing, auctive and generative, which againe are diſtributed into attractive, univerſall, and particular; retentive, concoctive, diſtributive, aſſimulative, & expulſive. The attractive, as the gullet and upper orifice of the ventricule; the retentive, as the *Pylorus* or lower paſſage of the ſtomacke; the concoctive, as the body of the ventricle, or its inner coate; the diſtributive, as the three ſmall guts; the expulſive, as the three great guts; we may ſay the ſame of the liver, for that drawes by the meſaraicke and gate veines, retaines by the narrow orifices of the veines diſperſed through the ſubſtance thereof; it concocts by its proper fleſh; diſtributes by the hollow veine, expels by the ſpleene, bladder of the gall and kidneies. We alſo ſee the parts in the teſticles devided into as many functions; for they draw by the preparing veſſels; retaine by the varicous crooked paſſages; in the ſame veſſels they concoct the ſeed by the power of their proper ſubſtance and facultie; they diſtribute by the ejaculatorie, at the glandules called *Proſtata*, and the hornes of the wombe, ſupplying the place of proſtates; Laſtly, they expell or caſt forth by the proſtates, hornes, and adjoyning parts. For as much as belongs to the particular attraction, retention, concoction, diſtribution, aſſimulation of each part, that depends of the particular temper, and as they terme it, occulte propertie of each ſimilar and ſimple part. Neither doe theſe particular actions differ from the univerſall, but that the generall are performed by the aſſiſtance of the three ſorts of fibers, but the ſpeciall by the ſeverall occult propertie of their fleſh, ariſing from their temperature, which we may call a ſpecificke propertie. Now in the compoſition of mans body, nature principally aimes at three things. The firſt is, to create parts neceſſary for life, as are the heart, braine, and liver. The ſecond, to bring forth other for the better and more commodious living, as the eyes, noſe, eares, armes and hands. The third is, for the propagation and renewing the *ſpecies* or kind, as the privie parts, teſticles, and wombe. And this is my opinion, of the true diſtinction of mans body, furniſhed with ſo many parts, for the performance of ſo many faculties; which you, if you pleaſe, may approve of and follow. If not, you may follow the common and vulgar, which is, into three bellies, or capacities, the upper, middle, lower (that is, the head, breaſt and lower belly) and the limbs or joints. In which by the head we doe not underſtand all the Animall parts, but onely thoſe which are from the crowne of the head to the firſt *vertebra* of the necke, or to the firſt of the backe, if according to the opinion of *Galen Lib. de oſsibus*, where he makes mention of *Enarthroſis* and *Arthrodia*, we reckon the necke amongſt the parts of the head. By the breſt, whatſoever is contained from the coller bones to the ends of the true and baſtard, or ſhort ribbs, and the midriffe. By the lower belly, the reſt of the trunke of the body, from the ends of the ribbs to the ſhare-bones; by the limbs, we underſtand the armes and legges. We will follow this diviſion in this our Anatomicall diſcourſe, becauſe wee cannot follow the former in diſſecting the parts of mans body, by reaſon the animall parts are mutually mixed with the vitall and naturall, and firſt of the lower belly.

The vulgar diviſion of mans body.

Nature would not have this lower belly bony, becauſe the ventricle might bee more eaſily dilated by meate and drinke, children might grow the better, and the body be more flexible. It is convenient we beginne our Anatomicall adminiſtration from this, becauſe it is more ſubject to putrifaction than the reſt, both by reaſon of its cold and moiſt temperature, as alſo by reaſon of the feculent excrements therein contained. Yet before we goe any further, if the Anatomicall adminiſtration muſt be performed in publike, the body bring firſt handſomely placed, and all the inſtruments neceſſary for diſſection made ready, the belly muſt be devided into its parts, of which ſome containe, and otherſome are contained.

Why the belly is not bony.

They are called containing, which make all that capacity which is terminated by the *Peritonæum* or Rim of the belly. The vpper part whereof is bounded by *Galen* within the compaſſe of the direct muſcles, and by a generall name is called *Epigaſtrium*, or the vpper part of the lower belly. That againe is devided into three parts, that is, into that which is above the navell, and which carries the name of the whole, into that which is about the navell, and is called the umbilicall or middle part; and laſtly, into that which is below the navell, called the *Hypogaſtrium*, or the lower part of the lower belly.

The deviſion of the lower belly.

In every of which three parts there be two laterall, or ſide parts to be conſidered, as in the *Epigaſtrium*, the right and left *Hypochondria*, which are bounded above and below, in the compaſſe of the midriffe, and the ſhort ribbs. In the vmbilicall the two Lumbares (ſome call them *Latera* ſides) which on both ſides from the loweſt parts of the breaſt, are drawne to the flankes, or hanch-bones; in the *Hypogaſtrium*, the two *Ilia*, or flankes, bounded with the hanch and ſhare-bones. Neither am I ignorant, the *Ilia* or flankes, which the Greekes call Λαγόες ſignifie all the emptie parts, from the ends of the ribs, even to the hanch-bones, whereupon they alſo call them Κενεῶνες as if you ſhould ſay, empty ſpaces, becauſe they are not encompaſſed with any bone. Yet I thought good that this doctrine of deviding the belly ſhould be more diſtinct, to call the parts which are on each ſide the navell *Lumbares*, and thoſe on the lower part of the lower belly *Ilia*, flankes. But we muſt obſerve that the Ancients have been ſo diligent in deciphering the containing parts, that as exactly as might be, they deſigned the bowells contained in the belly, which being diverſe lie in ſundrie places; for the greater portion of the liver lies under the right *Hypochondrium*; under the left almoſt all the ventricle and ſpleene. Vnder the *Epigaſtrium* the lower orifice of the ventricle, and the ſmaller portion of the liver; In the *Lumbares*, or ſides, in the right and upper part the right kidney, in the lower part towards the flancke, the

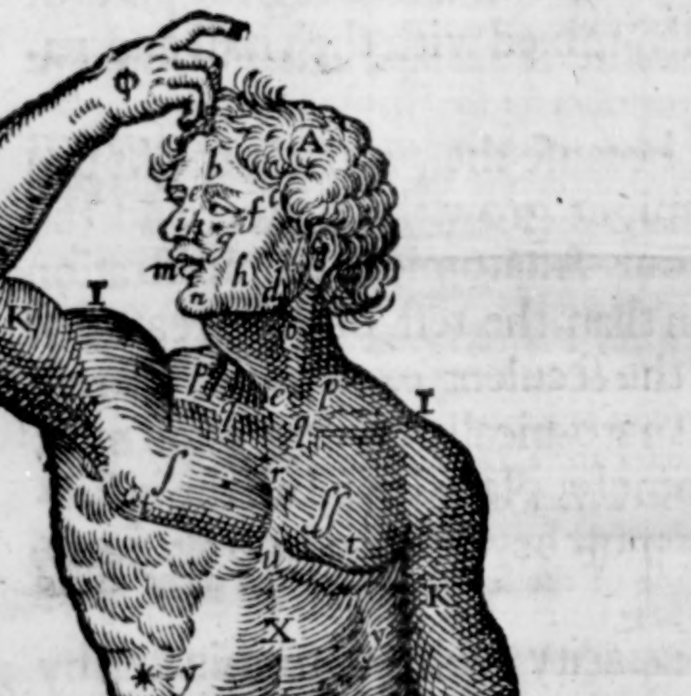
The *Hypochondria*.

blinde gut; in the middle part thereof the collicke and emptie guts. In the upper part of the left ſide lies the left kidney, in the middle part, the reſt of the emptie and collike guts. Vnder the region of the navell, lies the girdle or upper part of the kall, the collike gut thruſting it ſelfe alſo through that way. Vnder the *Ilia* or flankes, the right and left, lie the greater part of the gut Ileon, the hornes of the wombe in women bigge with child, and the ſpermaticke veſſels in men and women. Vnder the *Hypogaſtrium* in the lower part lies the right, or ſtraight gut, the bladder, wombe, and the reſt of the *kall*.

A moſt certaine note of the part affected, by the place where the paine is.

If we know, and well underſtand theſe things, wee ſhall more eaſily diſcerne the parts affect by the place of the paine, and cure it by fit application of remedies, without the hurting of any part. The diſtinction of ſuch places, and the parts in thoſe places, as ſeeming moſt profitable, *I* have thought good to illuſtrate by the placing theſe two following figures, in which thou haſt deciphered, not onely the foreſaid parts, containing, and contained, but alſo of the whole body, and many other things which may ſeeme to conduce to the knowledge of the mentioned parts. The Figures are theſe.

The Figure ſhewing the foreparts of the body.



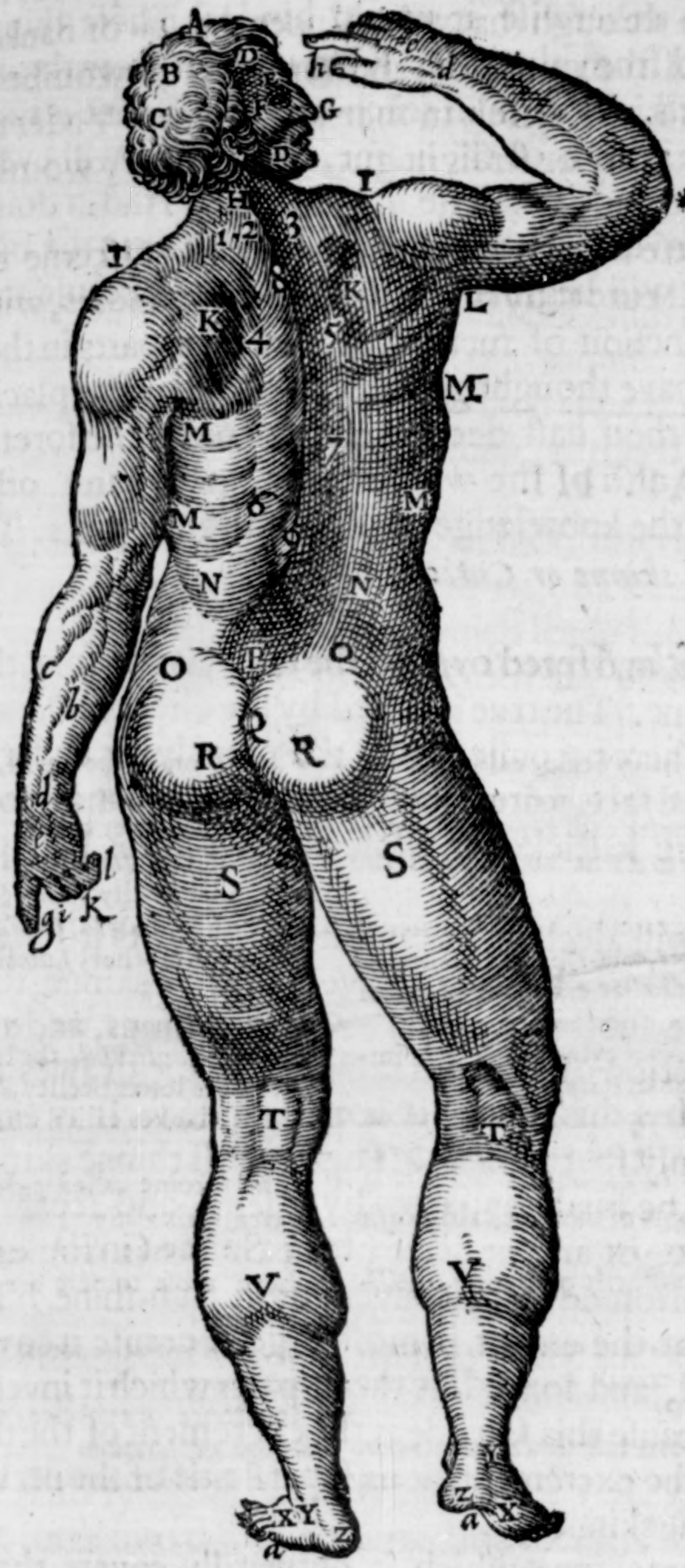
A The hairy Scalp, cald τριχωτὸς.
b the forehead cald *Frons*. μέτωπον.
c the temples cald *tēpora*, κρόταφοι.
From *b* to *d* The compaſſe of the face.
e The greater or inward corner of the eyes, cald *Canthus internus.*
f The leſſer or externall angle of the eye, cald *Canthus externus,*
* The lower eybrow which is immoveable, *Palpebra.*
g The cheek-ball cald *mala*, μῆλα.
h The chek-puf cald *bucca*, γνάθος.
i The ridge of the noſe cald *Naſus externus*, ῥὶν.
k The noſthrils cald *nares*, μυκτῆρες.
l The outward eare; *auris externa.*
m The mouth made of the two lips, *Os.*
n The chin called *mentum*, γένειον.
o The necke, *collum* αὐχὴν and τράχηλος.
From *o.* to *e.* the pillar of the necke, *truncus*, and ὅλμος.
pp The hollow of the necke, called *iuguli*, σφαγαὶ.
qq The patel bones, *claves* κλεῖδες.
r The cheſt *pectus*, στέρνον.
ſ The right breſt.
ſſ The left breſt: to this Region we apply cordiall *Epithemations* moiſt and drie.
tt The nipples of the breſts, *Papillæ* θηλαί.
u The trench of the heart which the Ancients called καρδία. The Latines *ſcrobiculus Cordis*, This part is annointed for the mouth of the ſtomacke.
From *u* to E, the lower belly, γαστήρ.
χ. The *Epigaſtirum* or upper part of the lower belly.
yy. The *Hypocondria* or *Præcordia.*
* The outward Liver-remedies are applied to this place.

Z. The region of the navill, callep *umbilicalis*, or the middle part of the lower belly.
A. The navill *umbilicus*. The roote of the belly ὀμφαλός.
BB. The ſide, *Latera*, πλευραί. and in our Author, *Lumbi ſeu Lumbaris regio.*
C. *Hypogaſtrium*, the water-courſe, *Aqualiculus*, the lower part of the lower beelley, ἦτρον.
DD. The flankes called *Ilia* and κενεῶνες.
E. The Groine called *pubes* or *pecten*, κτεὶς ἥβη.
FF. The Leske cald *inguen*, where thoſe tumors are cald *Bubones.*
G. the yard with the foreskinne, *penis cumpræputio.*
H. the ſtones or teſticles, with the cod or *ſcrotum.*
II. the ſhoulders *humeri*, ἐπωμίδες.
KK. the armes *Brachia*, βραχίονα.
L. the bowt of the arme, called *Gibber*, ἀγκών.
M. the outſide of the lower part of the arme cald *cubitus* πῆχυς.
N. the wreſt called *Brachiale* καρπός.
O. the after-wreſt *poſtbrachiale*, μετακάρπιον.
P. the Palme called *Palma* or *volo manus*, θέναρ.
φ the backe of the hand *Dorſum manus*, ὀπισθέναρ.
QQ. the fore ann middle part of the thigh, where wee apply cuppingglaſſes to bring downe womens courſes, μηρόν.
RR. the knee, *genus* γόνυ.
SS. the leg, *Tibia* κνήμη.
TT. the calfe of the leg *ſura*, γαστροκνήμιον.
VV. the inſtep, *tarſus*,
XX. the top of the foote *Dorſum pedis*, στῆθος ποδός.

YY. the inner Ankles, σφυρά. ZZ. the outward anckles. αα the toes of the feete, β the place under the inward anckle, where the veine called *Saphena* is opened.

The

The Figure of the backe parts of a man.



A The forepart of the head, *ſynciput*, βρεγμα.
B. the top or crowne of the head *vertex*, κορυφή.
C. the hinder-part of the head, *occiput*, κότις καὶ ἰνιὸν.
From D. to D. the face, *Facies*. πρόσωπον.
*E. the eyebrowes *ſupercilia*, ὀφρῦς.
F. the upper eye-lid, βλέφαρον.
* The tip of the noſe cald *globulus naſi*.
H. the backe part of the necke, cald *cervix*, αὐχήν. and the nuke or nape of the necke. There is a hollownesſe at the top of this *cervix*, where wee apply Seatons.
I. the backe part of the ſhoulder top, called *axilla*, ὦμος.
KK. the ſhoulder blades *ſcapulæ*, ὠμοπλάται.
1,2,3. On this place wee ſet cupping glaſſes.
4,5,6,7. the backe *dorſum*, νῶτον.
8,9. the ridge, *ſpina dorſi*, ῥάχις.
L the arme hole, *ala*, μασχάλη.
* the elbow, *Gibber brachij*.
M M M M. the ſides, *Latera*.
N N the loines *Lumbi*, or the region of the kidneyes, ὀσφύες.
O O. the place of the hips, *coxendices*, where we apply remedies for the Sciatica.
P. the place of the holy-bone, or *Os ſacrum* where we apply remedies in the diſeaſes of the right gut.
Q. the place of the Rumpe or *Coccyx*.
RR. the buttocks *Nates*, κλῶνες.
SS. the backe parts of the thigh, *Femen*.
TT. the ham, *Poples*, ἰγνύς.
VV. the calfe of the leg, *ſura*.
XX. the foote or *paruus pes*, πούς.
YY. the utter ancle, *Malleolus externus*.
ZZ. the heele, *calx* or *calcaneus*, πτέρνα.
aa the ſole of the foote *Planta pedis*, κοῖλον τοῦ ποδός.
b the inſide of the lower part of the arme called *Vlna*, ὠλένη.
c. the outſide of the ſame, *Cubitus* πῆχυς.
dd the wreſt, *Carpus*
ee the backe part of the hand, *dorſum manus*. *g*. the forefinger *index* λειχανός. *h*, the thumb, *pollex*, ἀντίχειρ.
i the middle finger, *medius*, μέσος.
k the rig-finger *Annularis*, *medicus*, ἰατρικός.
l. the little finger, *Auricularis*, *minimus*, ὠτίτης.

CHAP. II.

Of the containing parts of the Epigaſtrium, *and the preparation to Anatomicall adminiſtration.*

The containing parts of the lower belly.

THe containing parts of the *Epigaſtrium* are the *Epidermis* or thinne outward skinne, the true skinne, the fleſhie or fatty Panncle, the eight muſcles of the *Epigaſtrium* with their common coate, the Rim of the belly, the five vertebra's of the loines, all the holy-bone, the hanch-bone, ſhare-bone, the white line, and midriffe. Of theſe parts ſome are common to the whole body, as the three firſt; the other proper to the parts contained in the *Epigaſtrium* taken in generall. Which that you may ſee in their order, firſt you muſt cut round about the navell, to the upper ſuperficies of the muſcles, that ſo wee may keepe it, till ſuch time, as occaſion ſhall offer it ſelf, to ſhew the umbilicall veſſels lying in that place, which are one veine, two arteries, & the *vrachus* (if it be there.) Which being done, you muſt draw a ſtraight line from the cheſt, over the breaſt-blade, even to the ſhare-bone, which may divide the common containing parts, even to the white line.

Then preſently it will be convenient to draw two other lines acroſſe, or overtwhart, of the like depth on each hand, from the circumference of the navell, even to the ſides, that ſo on each part wee may draw the skinne more commodiouſly from the parts lying vnder it; the ſight of which otherwiſe it would hinder. Theſe things being done, the skinne muſt bee devided from the parts lying under it from the deſigned circumference left about the navell. Wee muſt teach how the skinne is twofold, the true and falſe, and render a reaſon of the name, which we will every where doe, as farre as the thing will ſuffer, and it ſhall lie in our power. And in doing or examining theſe things, it will be convenient diligently to inquire into the nine things mentioned in the preface. Wee will beginne with the skinne, becauſe that part is firſt obvious to our ſenſes.

CHAP. III.

Of the utmoſt skinne or Cuticle.

The skinne twofold. From what parts the skin cannot be ſeparated.

THe skinne being the firſt part, and ſpred over all the body, is twofold, that is, the true, and baſtard skinne. The true is called by the Greekes *Derma*, which may almoſt every where be pulled from the parts lying under it, which it inveſts; except in the face, eares, the palmes of the hands, ſoles of the feete, fingers, and privities, where it ſtickes ſo cloſe that it cannot be ſeparated.

The matter of the Cuticle.

Thequantitie.

The figure. The compoſure.

The baſtard (which firſt of all wee will declare, becauſe it firſt preſents it ſelfe to our ſight) is by the Greekes called *Epidermis*; becauſe it covers the true skinne, they terme it commonly the Cuticle. The ſubſtance of it is excrementitious, and as it were a certaine drie flouring, or production of the true skinne. That it drawes not its ſubſtance from the ſeede is apparent by this, that as it is eaſily loſt, ſo it is eaſily repaired, which happens not in parts truly ſpermaticall. This utmoſt thinne skinne, or cuticle, may two manner of wayes be made apparent by it ſelfe, and ſeparated from the other, as by burning with fire, or ardent heate of the Sunne (in ſome delicate bodies, and ſuch as are not accuſtomed to be converſant in Sun-ſhine.) The quantitie in thickneſſe is very ſmall; but the extent is moſt large, becauſe it covers all the skinne; the figure of it is round, and long, like thoſe parts which it inveſts. The compoſure of it is obſcure; yet becauſe this Cuticle is the excrement of the true skinne, wee ſay it hath its matter from the excrementitious ſuperfluitie of the nerves, veines, arteries, and ſubſtance of the true skinne.

The number.

The temperatuer.

The uſe

Why the cuticle cannot be reſtored in ſcars.

It is in number one, like as the true skinne which it outwardly covers, that it might be a *medium* betweene the object, and fixed facultie of touching, diffuſed over all the true skinne which every where lies under it. For the temperature, by the common conſent of Phyſitions, it is in the midſt of all exceſſe; for that ſeeing it is the *medium* betweene the object and facultie, if it ſhould be hotter, colder, moiſter, or drier, it would deceive the facultie by exhibiting all objects, not as they are of themſelves, but as it ſhould be; no otherwiſe than as to ſuch as looke through red or greene ſpectacles, all things appeare red, or greene. Wherefore for this reaſon it was convenient the cuticle ſhould be void of all ſenſe. It hath no action in the body; but it hath uſe, for it preſerves and beautifies the true skin; for it ſeemes to be given by the ſingular indulgence of nature, to be a muniment and ornament, to the true skinne. This providence of nature, the induſtrie of ſome Artizans (or rather *Curtizans*) doth imitate, who for to ſeeme more beautifull, doe ſmooth and poliſh it. By this you may underſtand; that not all the parts of the body have action, yet have they their uſe, becauſe, according to *Ariſtotles* opinion; Nature hath made nothing in vaine. Alſo you muſt note that this thinne skinne, or cuticle being loſt, may everie where be regenerated, unleſſe in the place which is covered with a ſcarre. For here the true skinne being deficient, both the matter and former facultie of the cuticle is wanting.

CHAP. IIII.

Of the true skinne.

The ſubſtance.
Magnitude.

THe true skinne called by the Greekes *Derma*, is of a ſpermaticke ſubſtance, wherefore being once loſt, it cannot be reſtored as formerly it was. For in place thereof comes a ſcarre, which is nothing elſe but fleſh dried beyond meaſure. It is of ſufficient thickneſſe, as appeares by the ſeparating from the fleſh.

Figure.

But for the extent thereof it encompaſſes the whole body, if you except the eyes, eares, noſe, privities, fundament, mouth, the ends of the fingers where the nailes grow, that is, all the parts by which any excrements are evacuated. The figure of it is like the cuticle round and long, with its productions, with which it covers the extremities of the parts.

Compoſure.

It is compoſed of nerves, veines, arteries, and of a proper fleſh and ſubſtance of its kinde, which wee have ſaid to bee ſpermaticall, which ariſeth from the proceſſe of the ſecundine, which leade the ſpermaticke veſſels even to the navell, in which place each of them into the parts appointed by nature, ſend forth ſuch veſſels, as are ſpread abroad and diffuſed from the generation of the skinne. Which alſo the ſimilitude of them both, that is, the skinne and membrane *Chorion* do argue. For as the *Chorion* is double, without ſenſe, encompaſſing the whole infant, lightly faſtened to the firſt coate which is called *Amnios*; ſo the skinne is double, and of it ſelfe inſenſible (for otherwiſe the nerves were added in vaine from the parts lying under it) ingirting the whole body, lightly cleaving to the fleſhie Pannicle. But if any object that the Cuticle is no part of the true skinne, ſeeing it is wholy different from it, and eaſily to be ſeparated from it, and wholly void of ſenſe: I will anſwer, theſe arguments doe not prevaile. For that the true skinne is more craſſe, thicke, ſenſible, vivide, and fleſhie, is not of it ſelfe, being rather by the aſſiſtance and admixture of the parts, which derived from the three principall it receives into its proper ſubſtance; which happens not in the cuticle. Neither if it ſhould happen would it be better for it, but verily exceeding ill for us, becauſe ſo our life ſhould lie fit and open to receive a thouſand externall injuries, which encompaſſe us on every ſide, as the violent and contrary acceſſe of the foure firſt qualities.

The skinne of it ſelfe is void of ſenſe.

The number.
Connexion.

There is only one skin, as that which ſhould cover but one body, the which it every where doth, except in thoſe places I formerly mentioned. It hath connexion with the parts lying under it by the nerves, veines, and arteries, with thoſe ſubjacent parts put forth into the skinne inveſting them, that there may be a certaine communion of all the parts of the body amongſt themſelves.

Temperature.

Vſe.

It is cold and drie in its proper temper in reſpect of its proper fleſh and ſubſtance, for it is a ſpermaticall part. Yet if any conſider the ſinewes, veines, arteries, and fleſhie threds which are mixed in its body, it will ſeeme temperate, and placed as it were in the midſt of contrarie qualities, as which hath growne up from the like portion of hote, cold, moiſt, and drie bodies. The vſe of the skinne is to keepe ſafe and ſound the continuitie of the whole body, and all the parts thereof, from the violent aſſault of all externall dangers, for which cauſe it is every where indewed with ſenſe, in ſome parts more exact, in others more dull, according to the dignitie and neceſſitie of the parts which it ingirts, that they might all be admoniſhed of their ſafetie and preſervation. Laſtly, it is penetrated with many pores, as breathing places, as we may ſee by the flowing out of ſweate, that ſo the arteries in their *diaſtole* might draw the encompaſſing aire into the body, for the tempering and nouriſhing of the fixed inbred heate, and in the *Syſtole* expell the fuliginous excrement, which in Winter ſuppreſt by the cold aire encompaſſing us, makes the skinne blacke and rough. Wee have an argument and example of breathing through theſe, by drawing the aire in by tranſpiration, in women troubled with the mother, who without reſpiration live onely for ſome pretty ſpace by tranſpiration.

The reaſon why the skin is blacker and rougher in Winter.

CHAP. V.

Of the fleſhie Pannicle.

AFter the true skinne, followes the membrane, which Anatomiſts call the fleſhy Pannicle, whoſe nature that we may more eaſily proſecute and declare, we muſt firſt ſhew what a membrane is, and how many wayes the word is taken. Then wherefore it hath the name of the fleſhie Pannicle. A membrane therefore is a ſimple part, broade and thin, yet ſtrong and denſe, white and nervous, and the which may eaſily, without any great danger be extended and contracted. Sometimes it is called a coate, which is, when it covers and defends ſome part. This is called the fleſhie Pannicle; becauſe in ſome parts it degenerates into fleſh, and becomes muſculous, as in a man from the coller bones, to the haire of the head, in which part it is therefore called the broad muſcle, where as in other places it is a ſimple membrane, here and there intangled with the fat lying under it, from whence it may ſeeme to take or borrow the name of the fatty Pannicle. But in beaſts (whence it tooke that name, becauſe in thoſe a fleſhie ſubſtance maketh a great part of this Pannicle) it appeares manifeſtly fleſhie and muſculous over all the body, as you may ſee in Horſes, and Oxen; that by that meanes being moveable, they may drive and ſhake off their flies, and other troubleſome things, by their ſhaking and contracting their backs. Theſe things conſidered, we ſay the fleſhie Pannicle in its proper body, is of a nervous or membranous ſubſtance, as that which hath its originall from the coate *Amnios*, (which is next to the infant) dilated neare to the navell and ſtretched forth for the generation of this Pannicle; in which thing I thinke good to note, that as the membranes *Chorion* and *Amnios* mutually interwoven with ſmall nervous fibers, encompaſſe and inveſt the child, as long as it is contained in the wombe; ſo the skinne and fleſhie Pannicle knit together by ſuch like bands, engirt the whole body.

What a membrane, is.

Why it is ſometimes called a coate, ſometimes the fleſhie and fattie Pannicle.

Why beaſts have this pannicle wholy, fleſhie or muſculous.

The ſubſtance

Therefore the fleſhie Pannicle is equall in magnitude and like in figure to the true skinne, but that it lies under it, and is contained in it, in ſome places mixt with the fat, in others encreaſed by the fleſh interwoven with it, and in other ſome is onely a ſimple membrane.

The magnitude and figure.

The compoſition of it is ſuch, as the ſight of it preſents to our eye, that is, of veines, arteries, nerves, and the proper fleſh, ſome whites mixed and interlaced with fat, and ſometimes with muſculous fleſh. It is but one, by reaſon of the uſe wee ſhall preſently ſhew; It is ſituated betweene the skinne and fat, or common coate of the muſcles, annexed to theſe and the other parts lying under it, by the veines, nerves, and arteries aſcending from theſe inward parts, and implanting themſelves into the ſubſtance thereof, and then into the true skinne.

Number.
Compoſure.

The temperature thereof is diverſe, according to the varietie of the parts interwoven with it. The uſe of it is, to leade, direct, and ſtrengthen in their paſſage, the veſſels which are diſſeminated into the true skinne, and the whole ſuperficies of the body. But in beaſts it hath another commoditie, that is, it gives a ſhaking or trembling motion to their skinne and backe, for that cauſe we formerly touched.

The temperature.
The uſe.

CHAP. VI.

Of the Fat.

THe fat comming neare the condition of an excrement, rather than of a part (as we ſaid, when we treated of the ſimular parts) is of an oily ſubſtance, bred of the aiery and vaporous portion of the bloud, which ſweating through the pores of the coates, or mouthes of the veſſels, becomes concreate about the membranes, and nerves, and cold bodies, and turnes into fat by the coldneſſe of the place. Whereby we may know that cold, or a more remiſſe heate, is the efficient cauſe of fat, which is manifeſt by contemplation not onely of creatures of diverſe kindes, but alſo by thoſe of the ſame ſpecies and ſexe, if ſo be that the one be colder than the other.

The fat is rather an excrement than a part.
The ſubſtance

The efficient cauſe of fat.

By which we may underſtand that the fat is the more or leſſe in quantity according to the different temper of the whole body, and of its particular parts; for its compoſition, it conſiſts of that portion of the blood which we formerly mentioned, intermixt with certaine membranes, nervous fibers, veines and arteryes. The greateſt part of it lyes betweene the fleſhy pannicle and the common coate of the Muſcles, * Otherwiſe it is diffuſed over all the body, in ſome places more, in ſome leſſe, yet it is alwaies about the nervous bodyes, to which it delights to cleave. Moſt Anatomiſts enquire whether the fat lye above or beneath the fleſhy pannicle. But methinkes this queſtion is both impertinent and idle; being we often ſee the fat to be on both ſides. It is of a middle temper betweene heat and cold, being it ariſeth of the more aery portion of the blood; although it may ſeeme cold in reſpect of the efficient cauſe, that is, of cold by which it concreats. For the reſt, moiſture is predominant in the fat. The uſe therof is, to moiſten the parts which may become dry by long faſting, vehement exerciſe or immoderate heat, and beſides to give heat, or keep the parts warme. Although it doe this laſt rather by accident, than of its owne nature, as heated by exerciſe, or by ſome ſuch other chance; it heats the adjacent parts, or may therefore be thought to heat them, becauſe it hinders the diſſipation of the native and internall heat; like as cold heats in winter, whereby the bellyes are at that time the hotter. I know ſome learned Phiſitions of our time ſtiffly maintained, that the fat was hot, neither did they acknowledge any other efficient cauſe thereof, than temperate heat and not cold. But I thinke it beſt to leave the more ſubtle agitation of theſe queſtions to naturall Philoſophers. But we muſt note, that at the joints which are more uſually moved, there is another ſort of fat, farre more ſolid and hard, than that which we formerly mentioned, often found mixed with a viſcid and tough humor like the whites of Eggs, that ſo it might be ſufficient for a longer time to moiſten theſe parts, ſubject to be hurt by dryneſſe, and make them ſlippery & ſo fitter for motion, in imitation whereof they uſually greaſe hard bodyes, which muſt be in frequent motion, as coach wheeles and axeltrees. And there is another kind of fat, which is called *Sevum*, ſeame, in one thing differing from the ordinary fat, that is much dryer; the moiſter and ſofter portion of the fat being diſſipated by the raging heat of the place. For it is found principally about the midriffe, where there are many windings of arteryes and veines, and it is alſo about the reines, Loines, and *baſis* of the heart. The fat is waſted by long faſting; is dryed and hardened by vehement exerciſe and immoderate heate. Hence it is that it is much more compact in the palmes of the hands, and ſoles of the feet, about the eyes and heart, ſo that it reſembles the fleſh in denſitie and hardneſſe; becauſe by the continuall motion and ſtrong heat of theſe parts, the thinner portion being diſſipated & diffuſed, the more Groſſe & terreſtriall remaine.

The quantity.

The compoſure.

The ſite.

I was preſent at the opening a body, Feb: 1630. in which the fat, in the lower part of the lower belly was in thickneſſe above 8, inches, upon the breſt betweene 4 and 5 inches: which I thought good to remember in this place both for the rarity of the thing, as alſo becauſe it was encreaſed by report, and the place miſtaken ſome ſaying the *Omentum* or Call was ſo thicke, which was falſe, for it did not much exceed the quantity of that part, in other fat men.

The Temper.

The uſe.

The ſolides fat, or ſeame.

In what parts and for what cauſe the fat is more denſe.

CHAP. VII.

Of the common coate of the Muſcles.

Next under the fat, appeares a certaine coate, ſpred over all the Muſcles, and called the common coate of the Muſcles, it is of a nervous ſubſtance; as all other membranes are. The quantity and breadth thereof is bounded by the quantity of the Muſcles which it involves, and fits it ſelfe to, as that which encompaſſes the Muſcles of the *Epigaſtrium*, is of equall largneſſe with the ſame Muſcles. The figure of it is round. It is compoſed of veines, nerves, arteryes and its peculiar fleſh conſiſting of three ſorts of fibers; the beginning of it is from the *Perioſtium*, in that part where the bones give ligaments to the Muſcles; or according to the opinion of others, of the nervous and ligamentous fibers of the Muſcles, which riſing up and diffuſed over the fleſhy ſuperficies thereof, are united for the generation of this coate. But this membrane ariſing from the *Perioſtium* (as every membrane which is below the head takes its originall from the *Perioſtium* either primarily, by the interpoſition of no *Medium*, or ſecondarily) is ſtretched over the Muſcles by their tendons. But if any object, that this membrance pluct from the belly of the Muſcle, may ſeeme

The ſubſtance

The quantity

The Compoſure.

The Original

to end in a ligament. I will anſwer, that it is the condition of every nervous part, ſo to binde or faſten it ſelfe to another part of his owne kinde as to a ſtay, ſo that it can ſcarſe be pluckt from thence. We ſee the proofe hereof, in the *Peritonæum* or *Rim* in the *Epigaſtrium* or lower part of the lower belly. **The number.** That which covers the Muſcles of the *Epigaſtrium* is but one, unleſſe you had rather part it in two, the right and the left diſtinguiſhed by the interpoſition of the *Linea Alba*, or white Line. **The ſite.** It is ſcituate betwixt the fat and Muſcles; for it is faſtened above and below to theſe parts with fibers, which in ſmallneſſe and fitneſſe exceed the Spiders web. But by its veſſells, it participates with the three principall parts, and is of a cold and dry temper. **The uſe.** The uſe of it is, to containe the Muſcles in their naturall vnion, and to keepe them as much as in it lyes, from putrifaction, which may happen to them from *pus* or matter, which is often caſt forth of the ſimular parts into the empty ſpaces and diſtances of the Muſcles. Wherefore going about to ſeparate the fat of the *Epigaſtrium* (where thou muſt begin the diſſection of mans body) you muſt have a care, that you hurt it not with your knife, but that, before you touch the Muſcles, ſee you artificially take it away, that you may the more eaſily ſeparate the Muſcles lying under it, **What the white lime is.** diſtinguiſhed by a manifeſt ſpace at the white Line, which is made by the meeting together of the proper coates of all thoſe muſcles.

CHAP. VIII.

What a Muſcle is, and how many differences there be thereof.

What a Muſcle is. A Muſcle is the inſtrument of voluntary motion; and ſimple voluntary motion is performed ſix manner of wayes, upwards, downewards, forwards, backwards, to the right hand and to the left; **How the circular motion is performed.** but the compound one way, which is circularly, the which is performed by the continuall ſucceſſion of the motion of the Muſcles ingirting the part. Such a Motion Falconers uſe when they ſtretch forth their hand and Lure their Hauke. We have ſome parts, which have motion without a Muſcle, but that motion is not voluntary, ſuch parts be the heart, ſtomacke, gutts, both the bladders (that is, that of the Gall and that of the urine) and diverſe other which have the motions of attraction, expulſion and retention, by the meanes of the three ſorts of fibers; for they draw by the right, expell by the tranſverſe, and retaine by the oblique. **From whence the differences of muſcles are drawne.** The differences of Muſcles which are many and diverſe, are taken from their ſubſtance, originall, inſertion into the part which they move, forme or figure, holes or openings, magnitude, colour, ſite, kind of fibers, their conjugation or connexion, heads, bellyes, tendons, oppoſition in action and office. **Differences of muſcles from their ſubſtance.** Some in ſubſtance are nervous, venous, arterious, becauſe they have manifeſt nerves, veines and arteryes, as the Midriffe, the Intercoſtall and Epigaſtricke Muſcles and many more, and that for their difference from other Muſcles, into which neither nerve nor veine, or Arteryes are manifeſtly inſerted, although ſecretly they admit them all for ſenſe and motion, life and nouriſhment; ſuch are the Muſcles of the wreſt, the wormy muſcles of the hands and feet; for if there be any nerves obſerved in them, they are very ſmall. Some had rather make the difference of Muſcles thus, that ſome of them are fleſhy, ſome nervous, others membranous. **Differences of Muſcles from their original.** From their Originall, ſome ariſe from the bones, as theſe which move the hands, armes and Leggs; others from griſtles, as the Muſcles of the throat; others from membranes which inveſt the tendons, as the wormy Muſcles of the hands and feet; others from ligaments as the Extenders of the fingers; others from other muſcles, as the two lower Muſcles of the yard which proceed from the Sphincter Muſcle of the fundament. Others have no originall, as the membrane which we call the fleſhy pannicle aſſumes fleſh in certaine places, and degenerates into a Muſcle; ſuch are the *Cremaſter* or hanging Muſcles of the teſticles, the large Muſcles of the face, and if you pleaſe the Midriffe, as that which is compoſed of two coates, the one incompaſſing the ribbs and the *Peritonæum*, hath fleſh in the midſt betweene the two membranes. And moreover ſome Muſcles have their originall from one onely bone, as theſe which bend and extend the Cubite, others ariſe of many bones as the oblique deſcending, the Dorſall and many Muſcles of the necke, with ariſe together from many ſpondyls and ſides of ſpondyls. There be others according to the opinion of ſome men, both from the bones and griſtles of the *Pubis* at the right or direct Muſcles of the *Epigaſtrium*, yet by their favour I thinke otherwiſe. Becauſe by the Anatomicall and received axiome, A Muſcle is there thought to take his beginnings from whence he receives a nerve; but theſe Muſcles take a nerve from the intercoſtall muſcles, wherefore their originall ought to be referred to the ſides of the breſt-blades, as ſhall be ſhewed in due place.

Where a muſcle hath its originall.

Differences of muſcles from their inſertion

¶From their inſertion ariſe theſe differences, ſome are inſerted into a bone, as thoſe which move the head, Armes and Legs; others into a griſtle, as thoſe of the Throtle, eyelids, noſe and the oblique aſcendant muſcles of the *Epigaſtrium*; ſome into a bone and griſtle both, as the right muſcles of the *Epigaſtrium* and the Midriffe; ſome into the skin, as the muſcles of the lips; others into the Coates as the muſcles of the eyes; others into Ligaments, as the muſcles of the yeard. But theſe differences following may be drawne both from their inſertion and originall. For ſome muſcles ariſing from many parts, are inſerted into ſome one part, as divers of theſe which move the arme, and the ſhoulder, which ariſing from many ſpondiles are inſerted into the bone of the ſhoulder and the ſhoulder blade. Others ariſe from one part, and inſert themſelves into more, as thoſe which ariſe from the bottome of the ſhoulder blades, are extended and inſerted into ſome eight or nine of the upper ribbs, to helpe reſpiration; and the benders and extenders of the fingers and toes; Others ariſing from many bones are inſerted into as many, as ſome of thoſe which ſerve for reſpiration, to wit thoſe which we call the hinder Saw-muſcles and the *Semiſpinatus*, which ſends a tendon into all the ribbs. Others have their originall from many bones, and end in griſtles of the ſeven ribbs, as thoſe two which lye under the *Sternon*. Moreover alſo theſe differences of muſcles may be drawne from the originall and inſertion, that ſome proceed from bones and are inſerted into the next bone, to helpe and ſtrengthen the motion thereof, as the three muſcles of the Hip; others ariſe from an upper bone & are not inſerted into the next, but into ſome other, as the long muſcles. Some are named from the part they move, as the temporall muſcles becauſe they move the temples; others from their office, as the grinding muſcles, becauſe they move the skin as a mill, to grinde aſunder the meale. From their forme or figure, becauſe ſome are like Mice, other like Lizards which have their Leggs cut off, for that they imitate in their belly, body or tendon, the belly or taile of ſuch creatures, & from whence the names of *Muſculus* and *Lacertus* are derived. Such are thoſe which bend the wreſt, and which are faſtened to the bone of the Leg, & which extend the foot; Others are triangular, as that which lifts up the arme, called *Epomis* or *Deltoides*, and that which drawes the arme to the breaſt, called the Pectorall muſcle. Others quadrangular as the Rhomboides, or Lozenge muſcle of the ſhoulder blade and the two hindeſum-muſcles ſerving for reſpiration, and two of the wreſts which turne down the hand; Others conſiſt of more than foure angles, as the oblique deſcending, and that muſcle with joynes it ſelfe to it from the ſhoulder blade; others are round and broad, as the Midriffe, others circular as the *Sphincter* muſcle of the fundament and bladder; others are of a pyramidall figure, as the ſeaventh muſcle of the eye, which compaſſes the opticke nerve in beaſts but not in men. Others have a ſemicirculer forme, as that which ſhuts up the eye ſeated at the leſſer corner thereof. Others reſemble a Monks cowle, or hood, as the *Trapezius* of the ſhoulder blade. Beſides others at their firſt originall are narrow, but broad at their inſertion, as the Saw-muſcle of the ſhoulder and the tranſverſe of the *Epigaſtrium*; others are quite contrary, as the three Muſcles of the Hippe; others keepe an equall breadth or bigneſſe in all places, as the intercoſtall muſcles and theſe of the wreſt; others are long and ſlender, as the long muſcle of the thigh; others are long and broad, as the oblique deſcending muſcles of the *Epigaſtrium*; others are directly contrary, as the Intercoſtall, which are very narrow. From their perforations, for ſome are perforated, as the Midriffe which hath three holes, as alſo the oblique and tranſverſe of the *Epigaſtrium*, that ſo they may give paſſage forth to the preparing ſpermaticke veſſells, and to the ejaculatory veſſells, the Coate *Erythroides* aſſociating and ſtrengthening them; others are not perforated. From their magnitude

Differences of muſcles taken from their figure.

Differences from their perforations.

From their magnitude.

for ſome are moſt large, as the two muſcles of the Hipp, others very ſmall, as the eight ſmall muſcles of the necke, and the proper muſcles of the Throtle, and the wormy muſcles. Others are of an indifferent magnitude.

From their Colour.

From their colour, for ſome are white and red, as the Temporall muſcles, which have Tendons comming from the midſt of their belly; others are livide, as the three greater muſcles of the calfe of the leg, which colour they have by the admixtion of the white, or tendinous nervy coate with the red fleſh, for this coat by its thickneſſe darkning the colour of the fleſh, ſo that it cannot ſhew its redneſſe and freſh colour, makes it ſeeme of that livide colour.

From their ſite.

From their ſcituation, for ſome are ſuperficiary, as thoſe which appeare under the ſkin and fat; others deepe in and hid, as the ſmooth and foure twin muſcles; ſome are ſtretched out and as it were ſpred over in a ſtreight and plaine paſſage, as the muſcles of the thigh which move the legge, except the Ham-muſcle; others oblique, as thoſe of the *Epigaſtrium*; otherſome tranſverſe, as the tranſverſe of the *Epigaſtrium*, where you muſt obſerve, that although all the fibers of the muſcles are direct, yet we call them oblique, and tranſverſe by comparing them to the right muſcles, as which by the concourſe of the fibers make a ſtreight or acute angle.

From their fibers.

From the ſorts of fibers; for ſome have one kinde of fiber; yet the greateſt part enjoy two ſorts running ſo up and downe, that they either are croſſed like the letter X, as happens in the pectorall and grinding muſcles; or elſe doe not concurre, as in the Trapezij. Others have three ſorts of fibers, as the broad muſcle of the face.

From their connexion.

From their coherence and connexion, or their texture of nervous fibers; for ſome have fibers ſomewhat more diſtant and remote immediately at their originall, than in other places, as you may ſee in the muſcles of the buttocks; Others in their midſt and belly, which by reaſon thereof in ſuch muſcles is more big or tumid, their head and taile being ſlender, as happens in moſt of the muſcles of the arme and leg, in which the denſe maſſe of fleſh interwoven with fibers, disjoynes the fibers in ſo great a diſtance; in otherſome the fibers are more diſtant in the taile, as in the greater Saw-muſcle ariſing from the bottome of the ſhoulder blade; in others they are equally diſtant through the whole muſcle, as in the muſcles of the wreſt and betweene the ribbs.

From their head.

From their head; for in ſome it is fleſhy interwoven with few fibers, as in the muſcles of the buttocks; in others it is wholy nervous, as in the moſt-broad-muſcle common to the arme and ſhoulder blade, and in the three muſcles of the thigh proceeding from the tuberoſity of the hucle bone; in ſome it is nervous and fleſhy as in the internall and externall muſcle of the arme. Beſides ſome have one head, others two, as the bender of the elbow and the externall of the legge, others three as the Threeheaded muſcle of the thigh. But wee muſt note that the word nerve or ſinew is here taken in a large ſignification, for a ligament, nerve and tendon, as *Galen* ſaith (*Lib. de Oſſibus*) and moreover we muſt obſerve, that the head of a muſcle, is one while above, another while below, otherwhiles in the midſt as in the Midriffe, as you may know by the inſertion of the Nerve, becauſe it enters the muſcle by its head.

From their belly.

From their belly alſo, there be ſome differences of muſcles taken; for ſome have their belly immediately at their beginning, as the muſcles of the buttocks, others at their inſertion, as the Midriffe. Others juſt at their head, as thoſe which put forth the Calfe of the leg; in others it is ſomewhat further off, as in thoſe which draw backe the arme, and which bend the legge; in others the belly extends even from the head to the taile, as in the intercoſtall muſcles and theſe of the wreſt; in others it is produced even to their inſertion, as in thoſe of the palmes of the hands and ſoles of the feet; ſome have a double belly, diſtinguiſhed by a nervous ſubſtance; as thoſe which open the mouth, and thoſe which ariſe from the roote of the lower proceſſe of the ſhoulder blade.

From their Tendons.

Moreover the differences of muſcels are drawne alſo from the Tendons, for ſome have none, at leaſt which are manifeſt, as the muſcles of the lips and the ſphincter muſcles, the intercoſtall and thoſe of the wreſt; others have them in part, and want them in part, as the Midriffe; for the Midriffe wants a Tendon at the ends of the ſhorter ribs, but hath two at the firſt *Vertebra* of the Loines in which it is terminated.

Others have a Tendon indeede. But ſome of theſe move with the bone, ſome not, as the muſcles of the eyes, and beſides, ſome of theſe have broad and membranous tendons, as the muſcles of the eyes and *Epigaſtrium*, except the right muſcles; in others they are thicke and round, as in the benders of the fingers; in others they are leſſe round, but more broad than thicke, ſuch is the Tendon ariſing from the twin muſcles and *Soleus* of the legge: others have ſhort Tendons, as the muſcles which turne downe the hand; otherſome long, as thoſe of the palmes of the hands and ſoles of the feet; beſides others produce Tendons, from the end of their belly which Tendons are manifeſt, others from the midſt, as the Temporall muſcles.

Beſides alſo others diffuſe many tendons from their belly, as in the hands the benders of the fingers, and the extenders of the feet. Otherſome put forth but one, which ſometimes is devided into many, as thoſe which bend the third articulation of the foot; otherwhile many muſcles by their meeting together make one Tendon, as the three muſcles of the Calfe of the leg, and thoſe which bend the cubit and leg. All tendons have their originall, when the nerves and ligaments diſperſed through the fleſhy ſubſtance of a muſcle, are by litle and litle drawne and meet together, untill at laſt carried to the joynt they are there faſtened for the fit bending and extenſion thereof. From the contrariety of their Actions, for ſome parts have contrary muſcles, benders and extenders; Other parts have none, for the Cods and fundament have onely lifters up. From their function, for ſome are made for direct motions, as thoſe which extend the fingers and toes; others for oblique, as the *Supinators* of the hand and the Pronators; others performe both, as the pectorall muſcle, which moves the Arme obliquely upward and downeward, as the upper and lower fibers are contracted; and alſo out right, if all the fibers be contracted together, which alſo happens to the *Deltoides* and *Trapezius*. I have thought it good to handle particularly theſe differences of muſcles, becauſe that by underſtanding them the prognoſticke will be more certaine; and alſo the application of remedies to each part; and if any occaſion be either to make inciſion, or ſuture, we may be more certaine, whether the part affected be more, or leſſe nervous.

From their Action.

From their function.

Chap. IX.

Of the parts of a Muſcle.

Having declared the nature and differences of a muſcle, we muſt note that ſome of the parts thereof are compound, or univerſall, others ſimple or particular. The compound are the head, Belly and taile. The ſimple are ligaments, a nerve, fleſh, a veine, artery and coate. For the compound parts, by the head we underſtand the beginning and originall of a muſcle, which is one while ligamentous and nervous, otherwhiles alſo fleſhy. By the belly, that portion which is abſolutely fleſhy; But by the taile, we underſtand a Tendon conſiſting partly of a nerve, partly of a ligament promiſcuouſly comming forth from the belly of the muſcle. For aſmuch as belongs to the ſimple, which are ſixe in number, three are called proper, and three common. The proper are a Ligament from a bone, a nerve proceeding from the Braine, or ſpinall marrow, and fleſh compact by the concretion of blood. The Common are, a veine from the Liver or trunke ariſing from thence; an artery proceeding from the Heart, a Coate produced by the nervous & ligamentous fibers ſpreading over the ſuperficies of the muſcle. But for the ſimple uſe of all ſuch parts, the nerve is as it were the principall part of a muſcle, which gives it ſenſe and motion, the Ligament gives ſtrength, the fleſh containes the nervous and ligamentous fibers of the muſcle and ſtrengthens it filling up all the void ſpaces, and alſo it preſerves the native humidity of theſe parts and cheriſheth the heat implanted in them; and to conclude, defends it from all externall injuries; for like a fan it oppoſeth it ſelfe againſt the heat of the Sunne; and is as a garment againſt the cold; and as a cuſhion in all falls and bruiſes, and as a buckler or defence againſt wounding weapons. The veine nouriſhes the muſcle, the arterie gives it life, the coat preſerves the

The compound & ſimple parts of a muſcle.

What uſe each ſimple particle hath in a muſcle.

the harmony of all the parts thereof, leſt they ſhould be any wayes diſioyned or corrupted by purulent abſceſſes breaking into the empty or void ſpaces of the muſcles, as we ſee it happens in a Gangrene, where the corruption hath invaded this membrane by the breaking out of the more acride matter or filth.

Chap. X.

A more particular inquiſition into each part of a muſcle.

The nature of a Ligament.

The threefold uſe of a Ligament.

What a nerve is.

What wee meane by the nervous and Ligamentous fibers.

HAving gone thus farre, it remaines, that we more particularly inquire into each part of a muſcle, that (if it be poſſible,) nothing may be wanting to this diſcourſe. Wherefore a Ligament properly ſo called, is a ſimple part of mans body, next of a bone and griſtle, the moſt terreſtriall, dry, hard, cold, white, taking its originall immediatly, or by the interpoſition of ſome Medium from the Bones, or Griſtles (from whence alſo the Muſcles have their beginning) wherby it comes to paſſe that a ligament is void of ſenſe, unleſſe it receive a nerve from ſome other place; (For ſo the Ligaments which compoſe & ſtrengthen the Tongue and yeard, are partakers of ſenſe) and it inſerts it ſelf into the bone and griſtle that ſo it may bind them together, and ſtrengthen and beautifie the whole joynt or connexion; (for theſe three be the principal uſes of a Ligament) then diffuſing it ſelf into the membranes and muſcles to ſtrengthen thoſe parts. A nerve to ſpeake properly, is alſo a ſimple parte of our body, bred and nouriſhed by a groſſe and Phlegmaticke humor, ſuch as the braine, the originall of all the nerves, and alſo the Spinall marrow endewed with the faculty of feeling and oftentimes alſo of moving. For there be divers parts of the body which have nerves, yet are deſtitute of all voluntary motion, having the ſenſe onely of feeling, as the membranes, veines, arteries, guts and all the entrailes. A nerve is covered with a double cover from the two membranes of the braine, and beſides alſo with a third proceeding from the ligaments which faſten the hinder part of the head to the *Vertebra's*, or elſe from the *Pericranium*. Wee underſtand no other things by the fibers of a nerve, or of a Ligament, than long and ſlender threds, white, ſolid, cold, ſtrong more or leſſe according to the quantity of the ſubſtance, which is partly nervous and ſenſible, partly Ligamentous and inſenſible. You muſt imagine the ſame of the fleſhy fibers in their kind; but of theſe threds ſome are ſtraight for attraction, others oblique for retention of that which is convenient for the creature, and laſtly ſome tranſverſe for the expulſion of which is unprofitable. But when theſe tranſverſe threds are extended in length, they are leſſened in bredth; but when they are directly contracted, they are ſhortened in length. But when they are extended all together as it were with an unanimous conſent, the whole member is wrinkled as contracted into it ſelfe, as on the contrary it is extended when they are relaxed. Some of theſe are beſtowed upon the animall parts, to performe voluntary motions; others upon the vitall to performe the agitation of the Heart and Arteries; others upon the naturall for attraction, retention and expulſion. Yet we muſt obſerve, that the attraction of no ſimular part is performed by the helpe of the foreſaid fibers or threds, but rather by the heat implanted in them, or by the ſhunning of Emptineſſe, or the familiarity of the ſubſtance. The fleſh alſo is a ſimple and ſoft part compoſed of the purer portion of the blood inſinuating it ſelfe into the ſpaces betweene the fibers, ſo to inveſt them for the uſes formerly mentioned. This is as it were a certaine wall and Bulwarke againſt the injuries of heat and cold, againſt all falls and bruiſes, as it were a certaine ſoft pillow or cuſhion yeelding to any violent impreſſion. There be three ſorts of fleſh; one more ruddy, as the muſculous fleſh of perfect creatures and ſuch as have blood; for the fleſh of all tender and young things having blood, as Calves, and alſo of all ſorts of fiſh, is whitiſh, by reaſon of the too much humidity of the blood. The ſecond kinde is more pallid, even in perfect creatures having blood, ſuch is the fleſh of the heart, ſtomacke, weaſond, guts, bladder, wombe. The third is belonging to the entrails, or the proper ſubſtance of each entrail, as that which remaines of the Liver (the veines, arteries and coate being taken away) of the

By what power the ſimular parts principally draw, or attract.

What and of how many ſorts the fleſh is.

bladder of the Gall, braine, kidneys, milt. Some adde a fourth ſort of fleſh which is ſpongy, and that they ſay is proper to the tongue alone.

What a vein is.

A veine is the veſſel, pipe or channel of the blood, or bloody matter; it hath a ſpermaticke ſubſtance, conſiſts of one coate compoſed of 3 ſorts of fibers.

What an artery is.

An Artery is alſo the receptacle of blood but that ſpirituous and yellowiſh, conſiſting in like manner of a ſpermaticke ſubſtance; But it hath two coats, with three ſorts of fibers, the utmoſt whereof is moſt thin, conſiſting of right fibers and ſome oblique: But the inner is five times more thicke and denſe than the utmoſt, interwoven with tranſverſe fibers; and it doth not onely conteine blood and ſpirit, but alſo a ſerous humor, which wee may beleeve becauſe there bee two emulgent Arteryes, aſwell as veines.

Why an Artery is more thicke and denſe than a veine.

But the inner coat of an Artery is therefore more thick, becauſe it may containe blood which is more hot, ſubtle and ſpirituous; for the ſpirit, ſeeing it is naturally more thin and light and in perpetuall motion, would quickly flye away, unleſſe it were held in a ſtronger hold. There is other reaſon for a veine, as that which containes blood groſſe, ponderous and ſlow of motion. Wherefore if it had acquired a denſe and groſſe coate, it could ſcarſe bee diſtributed to the neighbouring parts; God the maker of the univerſe, foreſeeing this, made the coats of the veſſels contrary to the conſiſtance of the bodyes contained in them. The *Anaſtomoſis* of the veines and Arteryes, that is to ſay, the application of the mouthes of the one to the other, is very remarkeable, by benefit of which they mutually communicate and draw the matters contained in them, and ſo alſo transfuſe them by inſenſible paſſages, although that *anaſtomoſis* is apparent in the veine and artery that meet together at the Ioint and bending of the Arme, which I haue ſometimes ſhewed in the Phyſicke ſchooles, at ſuch time as I there diſſected Anatomyes.

The mutuall *Anaſtomoſis* of the veines and arteryes.

Where it is manifeſt.

From whence a muſcle hath its beginning or head.

But the action or function of a muſcle is either to move, or confirme the parte according to our will, into which it is implanted; which it doth when it drawes it ſelfe towards its originall, that is to ſay, it's head. But wee define the head by the inſertion of the nerve, which wee underſtand by the manner of the working of the Muſcle.

CHAP. XI.

Of the Muſcles of the Epigaſtrium, *or lower belly.*

NOw ſeeing that wee haue taught, what a muſcle is, and what the differences thereof are, and what ſimple and compound parts it hath, and what the uſe, action and manner of action in each part is; it remaines that wee come to the particular explication of each Muſcle, begining with thoſe of the lower belly, as thoſe which we firſt meet withall in diſſection.

Eight muſcles of the *Epigaſtrium*.

Theſe are 8 in number, 4 oblique, 2 on each ſide, two right or direct one, on the right, another on the left ſide; and in like manner 2 tranſverſe. All theſe are alike in force, magnitude and action, ſo mutually compoſed, that the oblique deſcendant of one ſide, is conjoined with the other oblique deſcendant on the other ſide, and ſo of the reſt.

The oblique deſcendant.

Their ſubſtance.

Their greatneſſe and figure.

Their compoſure and ſite.

We may adde to this number the 2 little Supplying or Aſſiſting muſcles, which are of a *Pyramidal* forme and ariſe from the ſhare-bone, above the inſertion of the right muſcles; Of the oblique muſcles of each ſide the one aſcends, the other deſcends, whereupon it comes to paſſe, that they are called the Oblique deſcendant and Aſcendant Muſcles. Thoſe oblique which wee firſt meet with, are the deſcendant, whoſe ſubſtance is partly ſanguine, partly ſpermaticke; for they are fleſhy, nervous, ligamentous, veinous, arterious and membranous. Yet the fleſhy portion is predominant in them, out of which reſpect *Hippocrates* is wont to expreſſe the muſcles by the name of fleſhes; their greatnes is indifferent betweene the large and the ſmall muſcles; their figure 3 ſquare. They are compoſed of the fore-mentioned parts, they are two in number; their ſite is oblique taking their beginning, from the touching of the great ſaw Muſcle and from the ſixt and ſeaventh true ribbes, or rather from the ſpaces between the ſixe lower ribbes, and rather on the fore part of the muſcles than of the ribbes themſelues, from whence ſhunning the *Vertebra's* of the loines, the fleſhy parts of them are terminated in the externall and upper eminency of the Haunch-bone, and the Membranous end in the lower eminency of the ſhare-bone and the White-line. Yet *Columbus* diſſenting from this common deſcription of the oblique Muſcles, thinks that they are onely terminated in the White line and not in the ſhare-bone. For (ſaith he) wherefore ſhould they be inſerted into the ſhare-bone which is not moved? But becauſe it would bee an infinite labour and trouble to ſet downe at large the ſeverall opinions of all Authors of Anatomy, I haue thought it ſufficient for me to touch them lightly by the way. Their connexion is with the oblique aſcendant lying vnder them, and with the direct, or right. Their temperament is twofold, the one hot and moiſt by reaſon of the belly and the fleſhy portion of them; the other cold & dry in reſpect of their ligamentous and tendinous portion. Their action is to draw the parts into which they are inſerted towards their originall, or els to unite them firmely. Yet each of theſe privately and properly drawes the hip in an oblique manner towards the *Cartilago Scutiformis* or breſt-blade. Then follow the oblique aſcendant, who haue the ſame ſubſtance, quantity, figure, compoſure, number and temper the deſcendant have. They are ſcituate between the deſcendant and tranſverſe with whom they have connexion, eſpecially by the veſſels which are brought from the parts beneath. All the fleſhy parts ariſe from the rackbones of the Haunch to the ends of the baſtard ribs, which they ſeeme to admit above and below, being fleſhy even to the fourth, and then becomming membranous they take their way to the white line, with a double *aponeurôſis*, which paſſes through the right Muſcles above and below, as wee may plainely ſee from the navill downewards. In their fleſhy part they draw their originall from the ſpine of the Haunch bones a little lower than the deſcendent end in their fleſhy parte. But for their membranous parts, they ariſe before from the ſhare bone, but behinde from the ſpondiles of the Holy bone, and *Vertebra's* of the loines obliquely aſcending vpwards to the white line, into which they are terminated by an *aponeourôſis* or membranous tendon (which ſeemes to penetrate the right Muſcle vpwards and downewards, eſpecially vnder the navil) but by their fleſhy part at the ends of all the baſtard ribbes, which they ſeeme to receive above and below. And becauſe theſe muſcles are terminated in the white line, they have alſo another uſe, yet ſuch as is common to all the muſcles of the *Epigaſtrium*, that is, to preſſe down the Guts. Their action is (if they performe it together) to draw downe the cheſt, and dilate the breſt; but if their actions be ſeparate, they draw the cheſt to the hip with an oblique motion. After theſe follow the right muſcles, ſo called becauſe they deſcend according to the length of the body, & becauſe they have right or ſtreight fibers.

Their connexion.
Their temperament.
Their action.
The oblique aſcendant.
Their ſite and connexion.
Their Action
The right muſcles of the *Epigaſtrium*.

Wee will ſay nothing (to ſhunne prolixitie, which in all other places wee will avoid) of their ſubſtance and other conditions, which they have common with the fore mentioned Muſcles. They are ſcituate in the eminenteſt or extuberating region of the belly, bounding the *Epigaſtrium* taken in generall, (or the ſuperficiary belly,) they are devided by the manifeſt intercourſe of the white line, even to the Navell, in which place they ſeeme to be united even to the place of their inſertion. They draw their originall not from the ſhare bone, as ſome would have it, but according to the inſertion of their nerves, from the ſides of the *Cartilago ſcutiformis* & the ends of the ſixt ſeventh and eight ribbs; but they end in the ſhare bone where they make a common tendon ſufficiently ſtrong and ſhort. *Syluius*, *Veſalius* and *Columbus* thinke they ariſe from the ſhare bone, becauſe they cannot be inſerted into that bone, becauſe it is immoveable. You may perceive in theſe Muſcles certaine nervous & tranſverſe interſections, often times three in number for the ſtrength of theſe Muſcles (of which *Galen* makes no mention, although they may be ſeene in Apes.) And alſo in the inner ſide of theſe muſcles you may ſee foure veines and as many arteryes, of which ſome creepe upwards, others run downwards. The upper called the Mamillary deſcend from the Axillarie by the ſide and lower partes of the *Sternon*, the ſlenderer portions thereof being diſtributed

Their ſite.
Originall.

by the way, to the ***Mediaſtinum***, and about the fourth and fift rib to the Dugges, from whence they take their name.

The meeting together of the Epigaſtrick and mamillary veines and arteryes.

That which remaines breaking out by the ſides of the Breſt-blade inſerts it ſelfe into thoſe muſcles creeping along, euen almoſt to the navell; in which place they are manifeſtly united (that is the veines with the veines, and arteries with the arteryes) with the Epigaſtricke, which aſcend from the vpper part of the Iliackes on each ſide under the ſaid muſcles untill they meet with theſe 4 mamillary veſſels. That you may finde this concourſe of the veines and arteryes about the navill, you muſt follow both the upper and the lower ſomewhat deepe into the fleſh, preſſing the blood on both ſides from above downewards, and from below upward; untill you ſhall finde the exoſculation of theſe veſſels, which will appeare by this, that the blood will flow from this into that and from that into this; otherwiſe you can ſcarce perceiue it, by reaſon of the ſmallnes of ſuch veſſels which want blood. But that by the benefit of ſuch concourſe of the veſſels, the matters may be communicated and tranſported both from the wombe to the dugs, and againe from the dugs to the wombe, appeares in Nurſes, who want their courſes, when the milke comes into their dugs, and on the contrary loſe their milke when their courſes flow plentifully. Otherwiſe to what purpoſe ſhould there be ſuch concourſe betweene the veſſels of the pappes and wombe, for there are veines and arteries diffuſed to the ſides of the wombe from the roote of the Epigaſtrickes; for indeed the Epigaſtrickes which in their aſcent meete with the mamillary, goe not to the wombe, though they be next to them, and ariſe from the ſame truncke with the Hypogaſtricke veine of the wombe. The Action of theſe muſcles is, to move or drawe neere together the parts of the Hypogaſtrium to the *præcordia* or Hypochondryes. Their uſe, in *Columbus* opinion is, to draw the Breſt downewards ſo to dilate it. At the ends of theſe Nature hath produced two other ſmall Muſcles from the upper part of the ſhare bone, of a triangular figure for the ſafety of the thicke and common tendon of the right Muſcles, whereupon they are called *Succenturiati*, or aſſiſters.

Their actions.

Their uſe.

The Pyramidal or aſsiſting muſcles.

Some (moved with I know not what reaſon) would haue theſe two ſmall Muſcles to help the erection of the yeard. *Columbus* thinkes they ſhould not be ſeparated from the right, and that they only are the fleſhy beginnings of the right. But on the contrary *Fallopius* manifeſtly proves them different and ſeparate from the right and ſhewes their vſe. The Tranſverſe remaine to be ſpoken of, ſo called by reaſon of their fibers which make right angles with the fibers of the right Muſcles.

The tranſverſe muſcles of the *Epigaſtrium*.

Their figure and ſite.

They haue a quadrangular figure ſcituate vpon the greateſt part of the *Peritonæum*, to which they ſticke ſo cloſe that they ſcarſe can be ſeparated. They take their originall from the production of the loines, the Eminency of the Haunch-bone, the tranſverſe productions of the *vertebra's* of the loynes and the ends of the baſtard ribs; contrary to the opinion of many, whom the inſertion of the nerve convinces, but they end in the white line, as all the reſt doe.

Their Action.

Their action is to preſſe the guts, eſpecially for the expulſion of excrements.

The common uſe and action of the eight muſcles of the *Epigaſtrium*.

But all the 8 recited Muſcles, beſides their proper uſe, haue another common, that is, they ſtand for a defence or Bulwarke for all the parts lying under them, and ſerve for the expulſion both of the excrements, infant, and vapoures, and alſo for the ſtrengthening of the voice, as experience ſhewes in thoſe who ſound Trumpets and Cornets.

Therefore theſe Muſcles doe equally on every ſide preſſe the Belly; But the Midriffe, the intercoſtall Muſcles aſſiſting it, doth drive from above downewards, from which conſpiring contention followes the excretion of the excrements by the fundament; but unleſſe the Midriffe ſhould aſſiſte, theſe Muſcles would preſſe the excrements no more downewards, than vpward to the mouth.

Why when the mouth is open the excrements go more ſlowly forth.

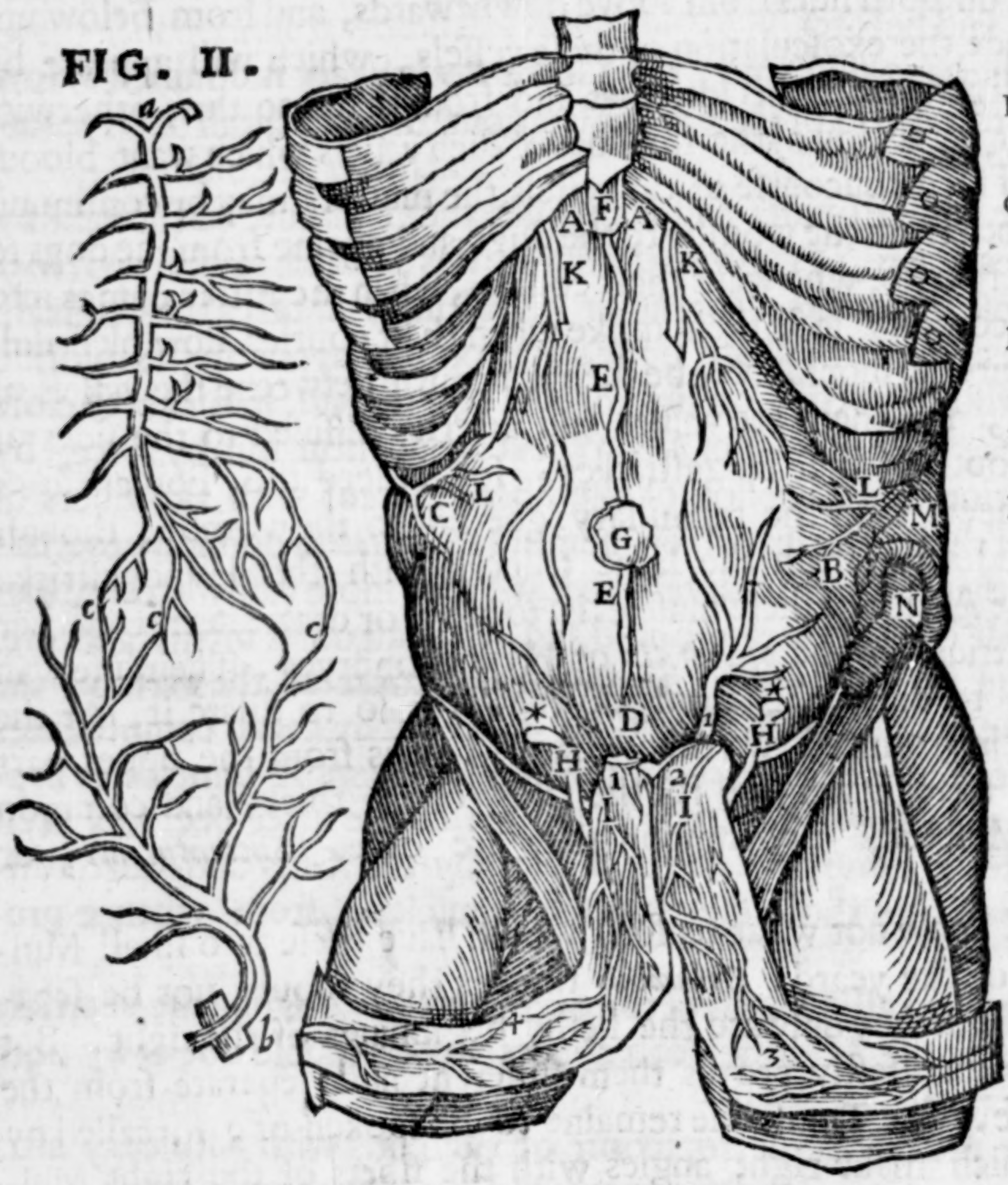
Although to this excretion of the excrements, it is not ſufficient that the Epigaſtricke, Midriffe and intercoſtall Muſcles preſſe the belly, but the Muſcles of the throtle muſt be alſo ſhut. For the mouth being open the excrements never goe well forth; becauſe the vapours that paſſe out of the mouth, Why when the mouth is open the excrements go more ſlowly forth.

mouth, which being reſtrained and driven to the Midriffe, by ſtretching it powerfully thruſts downe the excrement. Wherefore Apothecaryes when they give gliſters, bid the Patient to open his mouth, that the gliſter may eaſilyer goe up, which otherwiſe would ſcarſely go up, the mouth being ſhut, becauſe ſo we ſhould have no place empty in us, into which the glyſter might be admitted.

The firſt Figure of the Lower belly.

FIG. I

FIG. II.



AABCD. The upper, lower and laterall parts of the *Peritonæum.*

EE. The white Line from the Griſtle of the Breaſt-bone, called the Breſt-blade, to the Commiſſure or meeting of the Share-bones,

F. The Griſtle of the Breaſt-bone *Cartilago enſi-formis* or the Breaſt-Blade.

G. The Navill which, all the Muſcles being taken away, muſt be kept for the demonſtration of the Vmbilicall Veſſels.

H H. The productions of the *Peritonæum* which contain the Seminarie Veſſels on either ſide.

**. The hole which giveth way to the Seminarie Veſſels of Men.

II. A Veine and an Arterie from the *Epigaſtricke,* which being carried upward under the right Muſcles, doe here hang down, and are diſtributed into the lower part of the *Abdomen.*

KK. A Veine and an Arterie from the internall Mammarie proceeding from under the Bone of the Breaſt, are carried downeward thorough the right Muſcles and are diſſeminated into the upper part of the *Abdomen.*

1,2. The place wherein the right Muſcles ariſe, which being here cut off, do hang down, that their Veſſels may the better be ſcene.

3,4. The *Anaſtomoſis* or inocculation of the foreſaid Veſſels, making the conſent of the *Abdomen* and the Noſe, & of the Wombe with the Breaſts, as ſome think.

LL. Branches of Veines running into the ſides of the *Peritonæum.*

N. *The* place of the Haunch Bone bared, to which the Oblique and the *Tranſverſe* Muſcles doe grow.

Of the white line, and Peritonæum *or Rim of the belly.*

What the white Line is

The white line is nothing els, than the bound and extremities of the Muſcles of the *Epigaſtrium* diſtinguiſhing the belly in the middeſt into two parts, the right and left. It is called white, both of its owne colour, and alſo for that no fleſhy part lyes vnder it, or is placed above it. It is broader above the navill, but narrower below, becauſe the right muſcles doe there grow into one, Now we muſt treat of the Coat or membrane, *Peritonæum* or Rim of the belly; it is ſo called, becauſe it is ſtretched over all the lower belly, and particularly over all the parts conteined in the ventricle, to which alſo it freely lends a common coat. It hath a ſpermaticke ſubſtance as all other membranes have; the quantity of it in thicknes is very ſmall, (for it is almoſt as thin as a ſpiders web) yet differing in divers places in men and women; for men have it more thick and ſtrong aboue the Navil, that ſo it may conteine the extenſion of the ſtomacke, often ſtretched beyond meaſure with meat and drinke. On the contrary women have it ſo thick and ſtrong below their navell that it ſeemes double, that ſo they may more eaſily endure the diſtention of their wombe cauſed by the child conteined in it. But above the navell men and women have the *Peritonæum* of an equall ſtrength, for the ſelfe ſame reaſon. The longitude and latitude of it is knowne by the circumſcription of the belly.

What the *Peritonæum* is.

The ſubſtance and quantity.

The figure.

The figure is round and ſome what long; it puts forth ſome productions, like finger ſtalles, both for the leading and ſtrengthening the ſpermaticke veſſells and the *Cremaſter* muſcles of the Teſticles, and beſides it the eiaculatory veſſels, as alſo to impart a coat to the teſticles and all the naturall parts.

The compoſition.

It is compoſed of ſlender, membranous and nervous fibers, certaine ſmalle branches of veines and arteries concurring with them, which it receiues for life and nouriſhment from the adherent parts.

The number.

Lib. de ſem.

This membrane is one in number, and beſides every where one and equall, although *Galen* would haue it perforated in that place where the ſpermaticke veſſels deſcend to the Teſticles; But in truth we muſt not thinke that a hole, but rather a production as we ſaid before.

The latter Anatomiſts haue obſerved, the Coate *Peritonæum* is doubled below the Navell, and that by the ſpaces of theſe reduplications the vmbilicall arteryes aſcend to the Navell.

The ſite and connexion.

It is ſcituate nere the naturall parts and compaſſes them about, and joined by the coat, which it giues them, as alſo on the ſides, it is ioyned to the *vertebra's* of the loines, from whoſe ligaments, (or rather perioſtium) it takes the originall: on the lower part it cleaves to the ſhare bone, and on the upper to the midriffe whoſe lower parte it wholy inveſts; on the fore or outer parte it ſtickes ſo cloſe to the tranſverſe muſcles, that it cannot bee pluckt from them but by force, by reaſon of the complication and adhæſion of the fibers thereof with the fibers of the proper membrane of theſe muſcles, which membrane in *Galens* opinion proceeds from this Peritonæum, that ſo it is no marvaile that we may more eaſily breake, than ſeparate theſe two coats. It is of temperature cold and dry, as all other membranes are.

Lib. 6. Meth.

Vſe.

It hath many uſes, the firſt whereof is, to inveſt and cover all the parts of the lower belly, ſpecially the kall, leaſt it ſhould be ſqueeſed by great compreſſures and violent attempts into the empty ſpaces of the muſcles, as it ſometimes happens in the wounds of the *Epigaſtrium*, unles the lips of the ulcer bee very well united: for then appeares a tumor about the wound by the Guts and kall thruſting without the *Peritonæum* into thoſe ſpaces of the muſcles; from whence proceeds cruell paine.

Another vſe is to further the caſting forth of the excrements by preſſing the ventricle and guts on the foreſide, as the Midriffe doth above, as one ſhould doe it by both their hands joyned together.

The third uſe is, it prohibites the repletion of the parts with flatulency after the expulſion of the excrements, by ſtraitening and preſſing them downe.

The fourth and laſt is, that it conteines all the parts in their ſeat and bindes them to the backe-bone, principally that they ſhould not flye out of their places by violent motions, as leaping and falling from on high.

Laſtly wee muſt know, that the Rim is of that nature that it will eaſily dilate it ſelfe, as wee ſee in Dropſies, in women with child, and in tumors againſt nature.

CHAP. XIII.

Of the Epiploon, Omentum, *or* Zirbus, *that is the Kall.*

The ſubſtance, magnitude, figure.

AFter the conteining parts, follow the conteined, the firſt of which is the *Epiploon*, (or Kall) ſo called, becauſe it as it were ſwims upon all the guts. The ſubſtance of it is fatty and ſpermaticke, the quantity of it for thickneſſe is diverſe in diverſe men according to their temperament. The latitude of it is deſcribed by the quantity of the gutts. It is in figure like a Purſe, becauſe it is double.

The compoſure.

It is compoſed of veines, arteries, fat and a membrane, which ſliding downe from the gibbous part of the ventricle, and the flat part of the Gut *Duodenum* and ſpleen over the Gutts, is turned backe from the lower belly to the top of the Colon. It is one as wee ſaid covering the Gutts. It hath its cheefe connexion

The connexion.

nexion with the firſt *Vertebra's* of the loines, from which place in beaſts it ſeemes to take a coate, as in men from the hollow part of the ſpleene and gibbous of the ventricle and depreſſed part of the *Duodenum*, from whence doubled it is terminated in the fore and higher part of the Collicke gut. Which moved *Galen* to write that the upper part of the membrane of the Kall was annexed to the ventricle, but the lower, to the laxer part of the Collicke Gut. From the veſſells of which parts it borrowes his, as alſo the nerves, if it have any.

Lib. Anatom. adminiſt.

The temper.

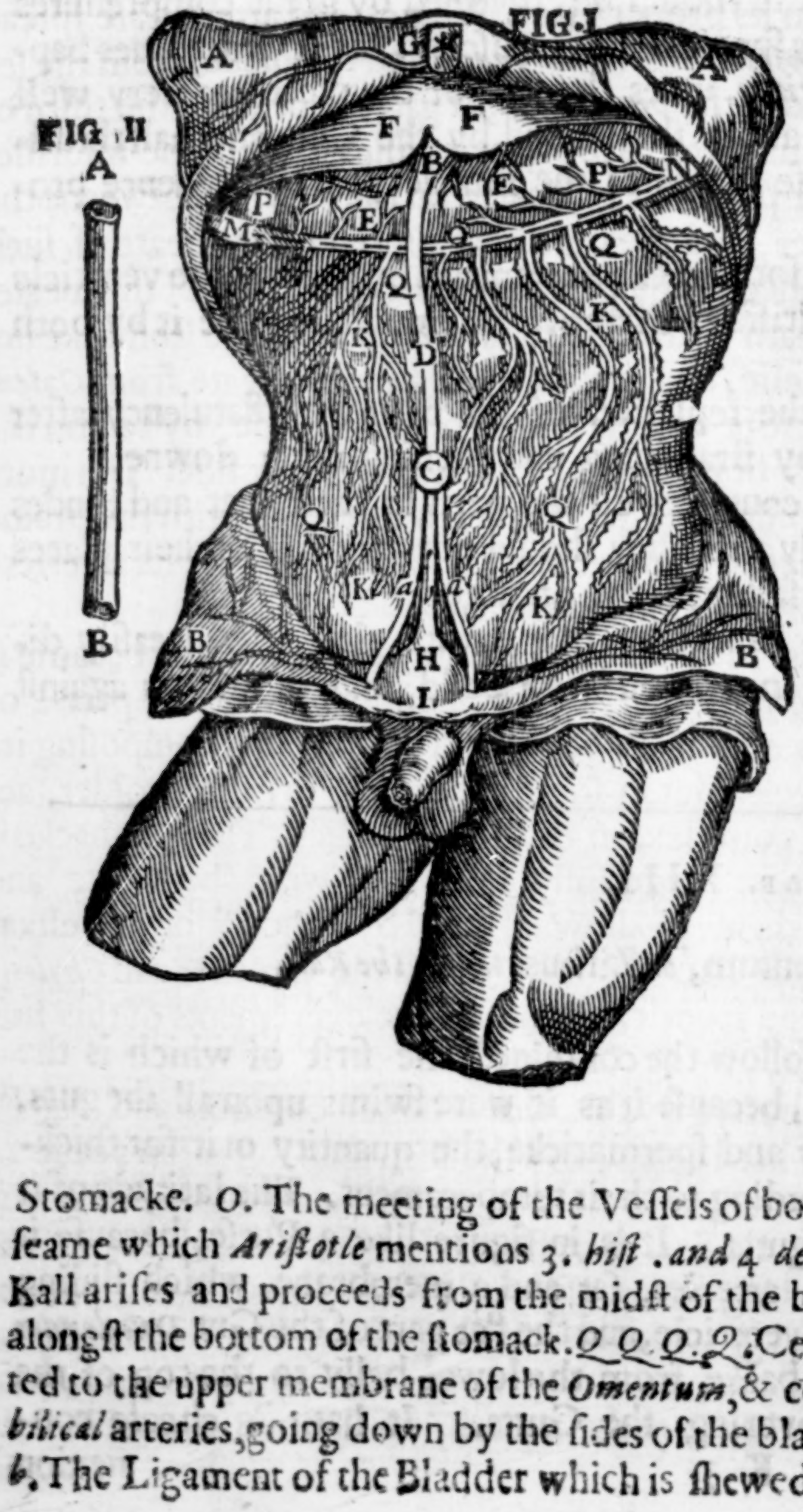
The temper of it in leane bodyes is cold and dry, becauſe their Kall is without fat; but in fat bodyes it is cold and moiſte by reaſon of the fat. The uſe of it is twofold: The firſt is to heat and moiſten the Guts, and help their concoction, although it doe it by accident, as that which through the denſity of the fatte hinders the cold aire from piercing in, and alſo forbiddes the diſſipation of the internall heat. Another uſe is, that in want of nouriſhment in times of great famine, for ſometimes it cheriſhes, and as it were by its dew preſerves the innate heate both of the ventricle and the neighbouring parts, as it is written by *Galen*. Moreover wee muſt obſerve, that in a rupture or relaxation of the *Peritonæum* the Kall falls downe into the *ſcrotum*, from whence comes that rupture wee call, *Epiplocele*. But in weomen that are ſomewhat more fat it thruſts it ſelfe betweene the bladder and the necke of the wombe, and by its compreſſion hinders, that the ſeed comes not with full force into the wombe, and ſo fruſtrates the conception. Beſides, when by a wound or ſome other chance, any part of it be defective, then that part of the belly which anſwers to it, will afterwards remaine cold and raw, by reaſon of the forementioned cauſes.

The uſe twofold.

Lib. 4 de uſu partium.

A cauſe of fruſtrating conception.

The ſecond figure of the lower belly.



A,A,B,B. The inner face of the *Peritonæum* cut into foure parts, and ſo turned backward.

B. The upper *B* ſheweth the implantation of the *Vmbilicall* Veine into the Liver.

C. The Navell ſeparated from the *Peritonæum*.

From *D* to the upper *B*. the *Vmbilicall* Veine.

E,E. The fore part of the ſtomack blowne up, neither covered by the liver nor the Kall.

F,F. A part of the *Gibbous* ſide of the Liver.

G. Veſſels diſſeminated thorow the *Peritonæum*.

* The Breſt-blade.

H. The bottome of the Bladder of Vrine.

I. The connexion of the *Peritonæum* to the bottome of the Bladder.

K,K,K,K. The Kall covering the Guts.

M.N. Veſſels and Sinnewes embracing the bottome of the Stomacke. *O*. The meeting of the Veſſels of both ſides, ſo that *M,N*, and *O*, ſhew the ſeame which *Ariſtotle* mentions 3. *hiſt*. *and* 4 *de part. Anim.* where he ſaith; that the Kall ariſes and proceeds from the midſt of the belly. *P.P*. Branches of veſſels running alongſt the bottom of the ſtomack. *Q.Q.Q.Q*. Certain branches of the Veſſels diſtributed to the upper membrane of the *Omentum*, & compaſſed with Fat. *a,a*. The two *Vmbilical* arteries, going down by the ſides of the bladder to a branch of the great arterie. *b*. The Ligament of the Bladder which is ſhewed for the *Vrachus*.

Chap. XIIII.

Of the Ventricle or Stomacke.

NOw we muſt ſpeake of the Stomacke, the receptacle of the food neceſſarie for the whole body, the ſeate of appetite, by reaſon of the nerves diſperſed into its upper orifice, and ſo into its whole ſubſtance. The ſubſtance thereof is rather ſpermaticke than ſanguine, becauſe that for one fleſhie membrane, it hath two nervous; The quantitie or magnitude of the ventricle is diverſe, according to the various magnitude of bodies, and gluttony of men. The figure of it is round and ſomewhat long, like a Bagpipe. The ſtomacke is compoſed of two proper coates, and one common from the *Peritonaeum*, together with veines, ſinewes, and arteries; the innermoſt of its proper coates is membranous woven with right fibers, for the attraction of meats, it is extended and propagated even to the mouth thereof, whereby it comes to paſſe that the affections of one part may eaſily be communicated to the other by ſympathy, or conſent. This coate hath its originall from the membranes of the braine which accompany the nerves deſcending from the third and fourth conjugation to the mouth thereof. And in like ſort from other productions deſcending by the paſſages of the head, from whence alſo another reaſon may be drawne from that, which they commonly bring from the nerves of the ſixt conjugation; why in wounds of the head, the ſtomacke doth ſo ſoone ſuffer by conſent with the braine. The exterior, or outer is more fleſhie and thicke, woven with oblique fibers, to retaine and expell. It drawes it originall from the *Pericranium*, which as ſoone as it comes to the gullet, takes unto it certaine fleſhie fibers. There be nerves ſent into the ſtomacke from the ſixt conjugation of the braine, as it ſhall be ſhewed in its proper place. Veines and arteries are ſpread into it from the *Gaſtrica*, the *Gaſtrepiploides*, the *Coronaria* and ſplenicke, from the ſecond, third, and fourth diſtribution of the *vena Porta*, or gate-veine; and the third of the deſcendent artery to the naturall parts, as ſoone as it paſſes forth of the midriffe.

What the ventricle is.
The ſubſtance
The magnitude.
The figure.
The compoſure.
The cauſe of the conſent of the mouth and ſtomacke.

It is one in number. The greater part of it is ſituated on the left ſide betweene the ſpleene, the hollowneſſe of the liver, and the guts, that aſſiſted by the heate of ſuch neighbouring parts, it may more cheerefully performe the concoction of the meate. Neither am I ignorant that *Galen* hath written, that a great part of the ſtomacke lies on the left ſide. But inſpection it ſelfe, and reaſon makes me derogate from *Galens* authority, for becauſe there is more emptie ſpace on the left ſide, by reaſon the ſpleene is leſſe than the liver, it was fit it ſhould lie more on the left ſide. The more proper connexion of it is with the gullet and guts, by its two orifices; with the braine by its nerves; with the liver and ſpleene by its veines; with the heart by its arteries; and with all the naturall parts by its common membrane.

The number.
Lib.4. de uſu partium.
The connexion.

The temper of the ventricle in men of good habite, is temperate, becauſe it is almoſt compoſed of the equall commixture of ſanguine and ſpermaticke parts; or according to *Galens* opinion, it is cold of its ſelfe, and by the parts compoſing it; and hot by the vicinitie of the bowels. But in ſome it is hotter, in others colder, according to the diverſe temper and complexion of diverſe bodies. That ſtomacke is to bee thought well tempered, that powerfully drawes downe the meate and drinke, and embraces and retaines them ſo drawne, untill by concoction and elixation, they ſhall be turned into a juyce like creame (which the Greekes call *Chylos*;) and laſtly, which doth ſtrongly ſend from it, and repell the excrements of this firſt concoction.

The temper.
Lib.9. Meth.

The ſtomacke is knowne to be hotter by this, that it better concocts and digeſts courſe and hard meates, as beefe, hard egges, and the like, than ſoft meates eaſie of digeſtion, which it corrupts and turnes into belchings. For ſo a young chickin, is ſooner burnt than well roſted at a great fire. The ſtomacke which is colder, deſires much meate, but is ſlow in concocting them, eſpecially if they be cold and hard of digeſtion, which for that cauſe quickly turne ſowre. The action of a well conditioned ſtomacke, is twofold, one common, another proper. The common is to attenuate mixe and digeſt the meates taken in at the mouth, for the nutrition of it ſelfe and

Notes of a hot ſtomacke.
The action twofold.

and the whole body, after the liver hath performed its dutie, which before it be done, the ventricle onely enjoyes the ſweet pleaſure of the *Chylus*, and comforts its ſelfe againſt the heate and impuritie of the adjacent parts, wherefore it is called the worke-houſe of concoction. Its firſt action is to attract, retaine, and aſſimulate to it ſelfe that which is convenient; but to expell whatſoever ſhall be contrary, either in quantitie, or qualitie, or in the whole ſubſtance.

The two orifices of the ſtomacke.

It hath two orifices, one above, which they commonly call the ſtomacke and heart, the other lower, which is called the *Pylorus*, or lower mouth of the ſtomacke. The upper bends to the left ſide neere the backe bone; it is farre more large and capacious than the lower, that ſo it may more commodiouſly receive meates halfe chewed, hard and groſſe, which Gluttons caſt downe with great greedineſſe; it hath an exquiſite ſenſe of feeling, becauſe it is the ſeate of the appetite, by reaſon of the nerves incompaſſing this orifice, with their mutuall embracings; whereby it happens that the ventricle in that part is endued with a quicke ſenſe, that perceiving the want and emptineſſe of meate, it may ſtirre up the creature to ſeeke foode. For albeit nature hath beſtowed foure faculties on other parts, yet they are not ſenſible of their wants, but are onely nouriſhed by the continuall ſucking of the veines, as plants by juice drawne from the earth.

The ſite.

This orifice is ſeated at the fifth *Vertebra* of the cheſt, upon which they ſay it almoſt reſts. Yet I had rather ſay that it lies upon the twelfth *Vertebra* of the cheſt, and the firſt of the loines; for in this place the gullet perforates the midriffe, and makes this upper orifice. The lower orifice bends rather to the right ſide of the body, under the cavitie of the liver. It is farre ſtraiter than the upper, leſt any thing ſhould

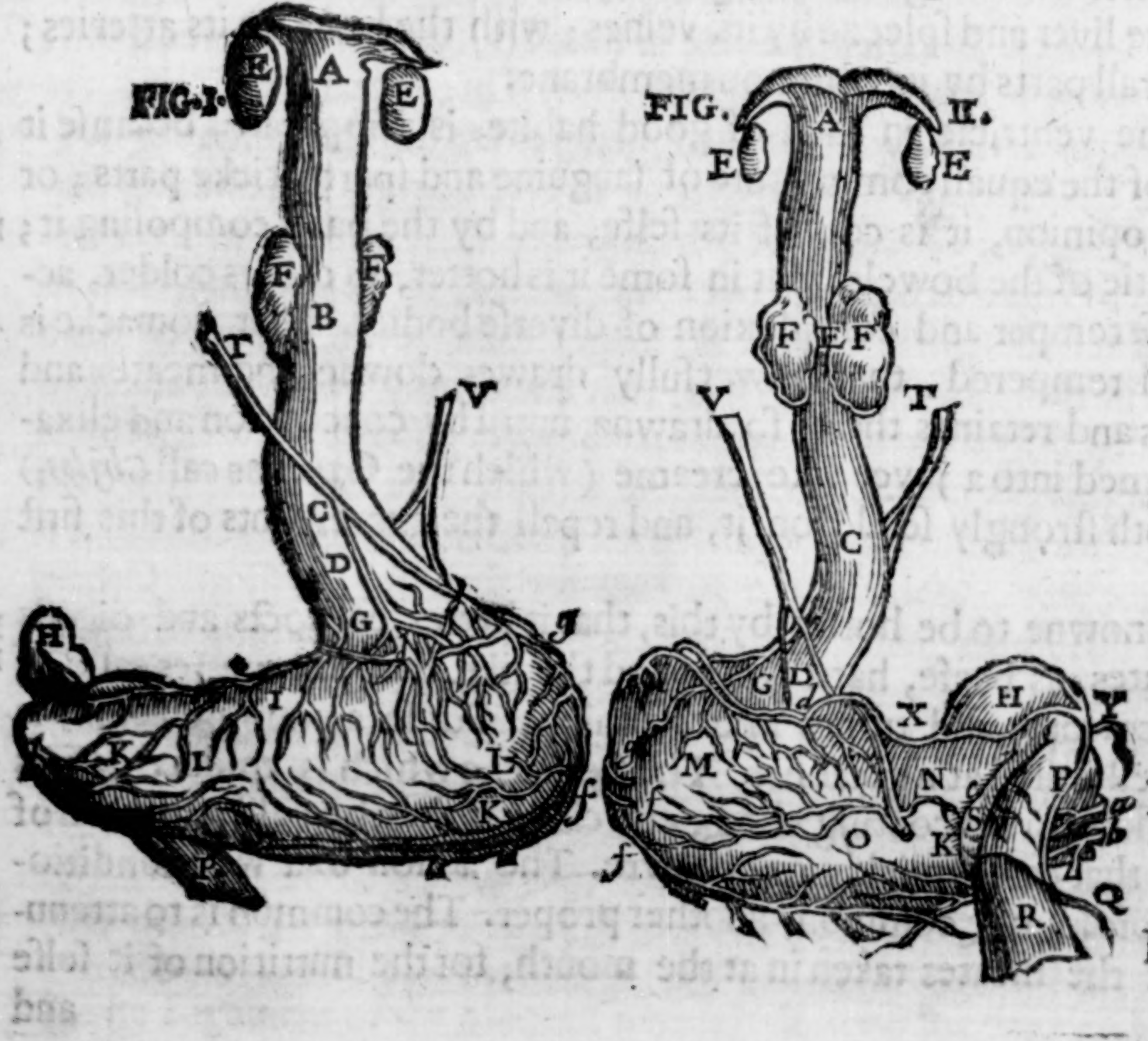
The glandudulous ring of the *Pylorus*.

paſſe away before it bee well attenuated and concocted; and it doth that by the helpe or aſſiſtance of, as it were a certaine ring, like to the ſphincter muſcle of the fundament, which ſome have thought a glandule made by the tranſpoſition of the inner and fleſhie membrane of the ventricle into that which is the outer of the guts. I know *Columbus* laughes at this glandulous ring, but any one that lookes more attentively ſhall perceive that the *Pylorus* is glandulous. The ſtomacke in its lower and inner ſide, hath many folds and wrinckles, which ſerve to hold and containe the meates, untill they be perfectly concocted. In the ventricle wee obſerve parts gibbous and hollow; the hollow is next to the liver and midriffe; the gibbous is to-

The falling downe of the ſtomacke.

wards the guts. Now we muſt note, that the ventricle when it is much reſolved or looſed, may ſlide downe even to the navell neare the bladder, the which wee have obſerved in ſome bodies diſſected after their death.

The third and fourth Figure.



The firſt figuse ſhewes the foreſide of the ſtomacke and gullet.

A. ſheweth the orifice of the gullet cut frō the throate.

B. the ſtraight and direct courſe of the gullet from A. to B.

C. how the gullet above the firſt racke bone of the cheſt, from B. to C. inclineth to the right hand.

D. his inclination to the left hand, from C. to D.

EE. the two glandules called the Almonds, ſet cloſe to the gullet in the end of the throate, called alſo *Pariſtmia, Antiades, Tonſillæ* and *Salviares glandulæ*. FF. Another glandulous body in the midſt of the gullet, about the fifth racke bone, from which place the gullet gives place to the great arterie, ſomewhat declining to the right ſide: *Veſalius, Lib.* 5, *Cap*.3. and *Columbus Cap.vlt.lib.9*. write, that thoſe Glandules are filled with a certaine moiſture, with which the gullet is moiſtened, that the meates may ſlide downe more eaſily into the ſtomacke, as through a ſlippery paſſage. No otherwiſe than the *Glandulæ proſtata*, filled with a kind of groſſe and oily moiſture, ſmooth the paſſage of the urine, that ſo it may flow through it, with a more free and leſſe troubled courſe. G. the connexion of the gullet with the ſtomack, where the upper orifice of the ſtomack is faſhioned. H. the lower orifice of the ſtomacke called *Pylorus*. I. K. the upper part of the ſtomacke at I. the lower at K. LL. the foreſide of the ſtomacke. P. the gut called *Duodenum*. T. V. the right and left nerves of the fixth paire encompaſſing about the gullet and the uppermoſt left orifice of the ſtomacke.

The ſecond Figure ſheweth the backe parts of the Ventricle and Gullet.

A. EE. FF. G. H: P. TV. ſhew the like parts as in the former. From C. to D. the inclination of the ſtomacke to the left hand. M. N. O. the backeſide of the ſtomacke. M. ſheweth the prominence of the left ſide. N. of the right. O ſheweth the docke or impreſſion, where it reſteth upon the racke bones. Q. R. the paſſage of the bladder of the gall into the *Duodenum* at R. S, a glandulous body growing under the *Duodenum*, bearing up the veſſels. X.Y. a nerve on the left ſide creeping up to the top of the ſtomacke, and ſo running out to the liver.

CHAP. XV.

Of the Guts.

Their ſubſtance.

THe Guts the inſtruments of diſtribution and expulſion, are of the ſame ſubſtance and compoſure with the ſtomacke, but that the ſite of the coates of the ſtomacke is contrarie to thoſe of the guts. For that which is the innermoſt coate of the ſtomacke is the outermoſt of the guts, and ſo on the contrary. The figure of the guts is round, hollow and capacious, ſome more, ſome leſſe according to the diverſe bigneſſe.

Figure.

But for the quantitie of the guts, ſome are ſmall, ſome great, more or leſſe, according to the varietie of bodies. But they are ſixe in number, for there be three ſmall; the *Duodenum*, the *Ieiunum*, or emptie gut, and the *Ilion*. Three great, the Blind, the Collicke, and the Right gut. All which have had their names for the following reaſons; the firſt, becauſe it is extended the length of twelve fingers, like another ſtomacke, without any turning, or winding; of which greatneſſe it is found in great bodied men, ſuch as were more frequenly to be met withall in *Galens* time, than in this time of ours, in which this gut is found no longer than ſeven, eight, or nine fingers at the moſt. The cauſe of this length is, that there may be a free paſſage to the gate veine, comming out of the liver, as alſo to the artery and nerve which runne into it. For ſeeing that this gut may ſometimes riſe to the top of the liver, it would poſſeſſe the ſpace under the bladder of the gall (with which it is often tinctured) if it had any revolutions that way, which is the paſſage for ſuch like veſſels. Others give another reaſon of this figure, which is, that there ſhould bee nothing to hinder the eaſie and fit diſtribution of the perfectly concocted *Chylus* to the liver.

Their number

The *Duodenum*.

The ſecond is called *Ieiunum*, or the empty gut, not becauſe it is abſolutely ſo, but becauſe it containes little in compariſon of the other. There is a triple cauſe of this emptines; the firſt the multitude of the meſeraick veines and arteryes which are about it, whereupon there is a greater and quicker diſtribution of the *Chylus*. The ſecond is the vicinity or neighbourhood of the liver ſtrongly drawing the *Chylus* conteined in it; the third is the flowing downe of the cholericke humor from the bladder

The *Ieiunum*.

Ileon.

Cæcum.

Colon.

Rectum.

of the Gall into it, which ever and anon by its acrimony cleanſes away the filth, and by continuall flowing ſollicites it to expulſion. The third is called *Ileon* becauſe it lyes betweene the *Ilia* or flankes, it differs nothing from the reſt in ſubſtance and magnitude, but in this one thing, that there is more matter contained in it than in the reſt, by reaſon of the paucity of the veſſels terminated in it, that it is no marvell that there can be no exact demonſtration made of them. The fourth is called *Cæcum* or the Blind, becauſe it hath but one paſſage to ſend out and receive in the matter. This gut hath a long and ſtrait production, which according to the opinion of ſome (though altogether erroneous) often falls downe into the *Scrotum* in the rupture, or relaxation of the Rim of the Belly; for that production in the lower belly ſtrongly ſtickes to the *Peritonæum* or Rim, which hinders ſuch falling downe. But *Galen* ſeemes by ſuch a blind gut to haue meant this long and narrow production, and certainely ſo thinkes the common ſort of Anatomiſts, but here *Veſalius* juſtly reprehended *Galen*. Wherefore *Sylvius* that he might free *Galen* of this fault, would haue us by the blind gut to underſtand the beginning of the collicke gut. The fiſt is called *Colon* (or collicke gut) becauſe it is greater and more capacious than the reſt. The ſixt and laſt, the Right gut, by reaſon of the rightnes or ſtraightnes of the paſſage. This in beaſts eſpecially, hath a certaine fatneſſe in it to make the paſſage ſlippery, and leſt the gut ſhould be exulcerated in the paſſage, by the ſharpeneſſe of hard and acrid excrements.

Their ſite.

The ſite of theſe guts is thus, The *Duodenum* upon the backebone bends to the right hand; the *Ieiunum* poſſeſſes a great part of the upper umbilicall region, diffuſes it ſelfe into both ſides with windings, like to theſe of the gut *Ileum*, even to the flankes. The gut *Ileon* is ſituate at the lower part of the umbilicall region, going with many turnings and windings, even to the hollowneſſes of the holy-bone above the bladder and ſide parts of the *Hypogaſtrium*, which they call the flankes.

The Blind bends to the right hand, a little below the kidney, above the firſt and fourth *Vertebra* of the loines. The Colon or Collicke gut is crooked and bent, in the forme of a Scythian bow, filling all the ſpace from the blind gut, below the right kidney, even to the hollownes of the liver, and then it goes by the gibbous part of the ſtomacke above the ſmall guts, even to the hollowneſſe of the ſpleene; from whence ſliding under the left kidney, with ſome turnings, it is terminated upon the *Vertebra's* of the loines.

The diſtinction betweene the collicke and the ſtone in the kidnies. Their connexion.

By all which turnings and windings of the collicke gut, it is eaſie to diſtinguiſh the paine of the ſtone of the kidneies, which remaines fixt in one certaine place, from the collicke wandring through theſe crooked paſſages we mentioned. The right gut tends with an oblique ſite towards the left hand, upon the holy bone even to the very fundament. They have all one and a common connexion; for they are all mutually joined together by their coats, becauſe there is but one way from the gullet even to the fundament, but they are joyned to the principall parts by their nerves, veines, and arteries.

But a more proper connexion is that, where the *Duodenum* on the upper part of it, is joyned with the *Pylorus*; but on the lower part, to the *Ieiunum*, and the parts lying under it, by the coate of the *Peritonæum*. The *Ieiunum*, or emptie gut, is ioyned to the *Duodenum* and *Ileon*. The *Ileum* with the emptie and blind guts. The blind with the *Ileon* and *Colon*, and with the right ſide of the backe bone where it is tied more ſtraitly. The *Colon* with the blind and right guts, and in his middle part, with the kidneies and the gibbous part of the ſtomacke; whereby it comes to paſſe, that being diſtended with wind in the collike, it overturnes and preſſes the ſtomacke, and ſo cauſes vomiting.

Why vomiting happens in the collicke.

The *Sphincter* muſcles of the fundament.

Gal. lib. 5. de uſu partium. cap. 19.

Laſtly, the right gut is annexed with the collicke gut and fundament. At the end whereof there is a muſcle faſtened, of figure round and circular called the *Sphincter*, ariſing from the lower *Vertebra's* of the holy bone and rump, by the benefit of which as of a dore or gate, the excrements are reſtrained at our will, leſt man borne for all honeſt actions, without all ſhame, in every time and place, ſhould be forced every where to eaſe his belly. For ſuch as have loſt the benefit of this muſcle by the palſy, have their excrements goe from them againſt their wills. There is a body ſituate at the end of the right gut, of a middle ſubſtance betweene the ſkinne and fleſh, as it were ariſing from the mixture of them both, like the extremities of the lippes, of the ſame uſe with the *Sphincter*, but that it is not altogether ſo powerfull. But there are alſo certaine veines ſituate about it called the Hæmorrhoidall, of which we will ſpeake in their place.

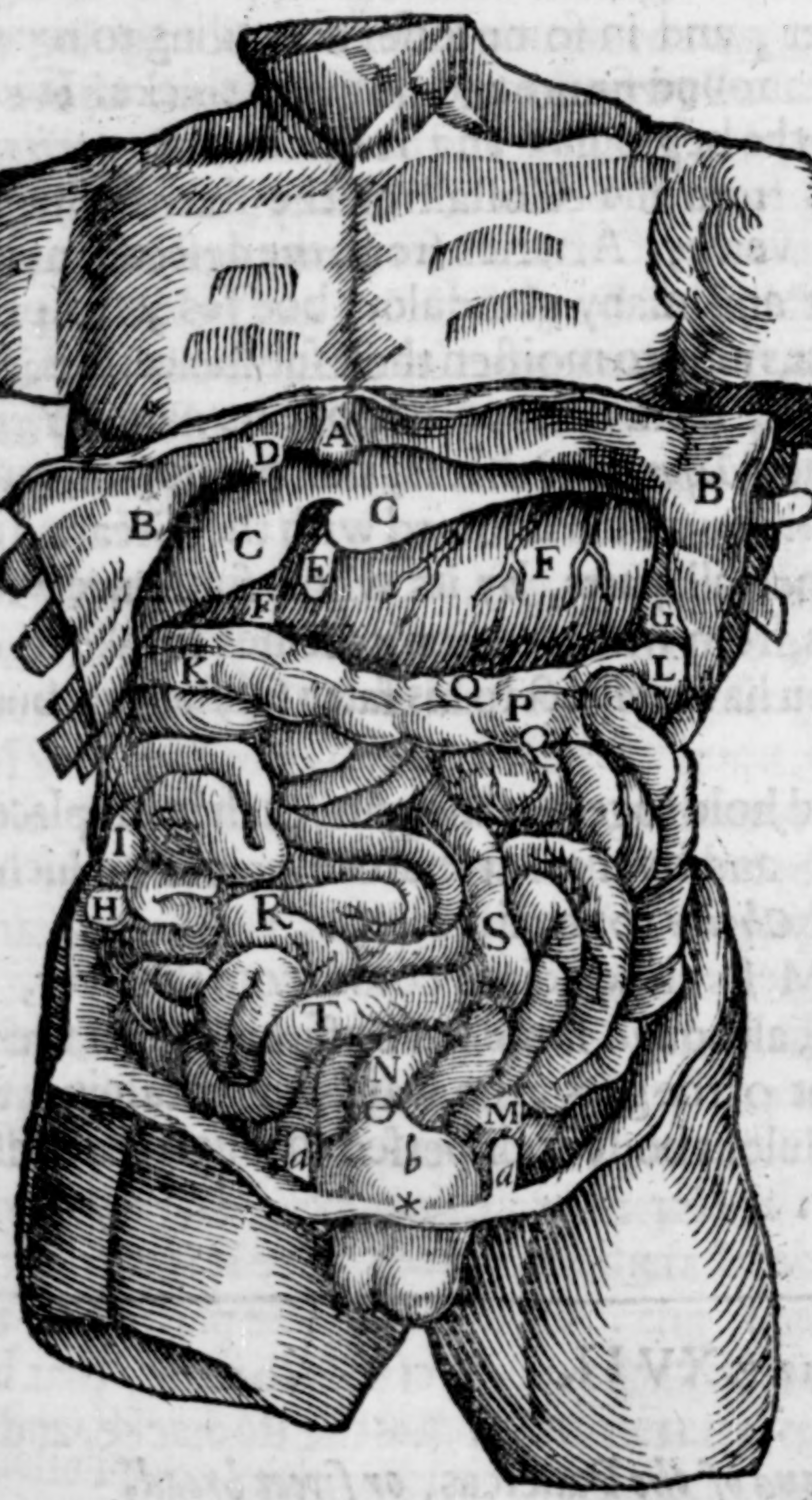
Levatores Ani.

Beſides, there are two other muſcles that deſcend to the end of this gut, being broad and membranous on each ſide, one ariſing from the ſide and inner parts of the ſhare and hippe-bones, which inſerted above the *Sphincter* pull up the fundament falling downe, wherefore they are called *Levatores Ani*, or the lifters up of the fundament. Wherefore when as either they are too weake, or reſolved, or the fundament oppreſſed with the weight of flegmaticke, ſalt, chollericke and ſharpe humors, the gut is ſcarſe reſtored into its place, that there is neede of the helpe of the fingers for that purpoſe.

The action of the guts.

The guts follow the temper of the ſtomacke. Their action is the diſtribution of the *Chylus* by the meſeraicke veines (which of dutie belongs to the three ſmall guts) and the receiving the excrements of the *Chylus*, and retention of them, till a fit time of expulſion, which belongs to the third quarter. Beſides, theſe ſmall guts finiſh up the worke of concoction, begun in the ſtomacke, although they be not altogether made for that uſe. But nature is often accuſtomed to abuſe the parts of the body for ſome better uſe.

The fiſth figure of the lower belly.



A. The breſt blade, *Cartilago Enſiformis.*

BB. The Rim, with the midriffe aud broken ribs bent outwards.

CC. the gibbous part of the liver.

D. a ligament tying the liver to the midriffe.

E. part of the umbilicall veine.

FF. the ſtomack fild full of meate.

G. a part of the ſpleene.

H. the blind gut of the late writers, for the Ancients tooke the toppe of the *colon* for it.

I. the beginning of the great or thicke guts.

I. and ſo to K. ſheweth the paſſages of the collicke gut from the right kidney to the liver. And ſo the collicke and the ſtone on this ſide are in one place, and therefore hardly diſtinguiſhed.

K, to L. the ſame collicke gut lieth under the whole bottome of the ſtomacke, which is the reaſon that thoſe which are troubled with the collicke caſt ſo much.

L. to M. The paſſage of the *Colon* from the ſpleene to the ſhare bone, by the left kidney, a way, which maketh the paine of the ſtone and the Collick on the left ſide very hard to diſtinguiſh. N. The *Colon* ending in the right gut. O. The beginning of the right gut unto the bladder. P. Q. The ſunken or fallen ſide of the *Colon* at P. and his Chambers or Cells at Q. R. S. T. The leſſer guts, eſpecially lying under the Navil. *a. a.* The two umbilicall arteryes. *b.* The bottome of the bladder. * The connexion of the bladder and the *Peritonæum.*

Their fibers.

But we muſt note, that for the compoſure of the guts, they have onely tranſverſe fibers, for expulſions ſake, unleſſe that at the beginning of the *Colon*, and the end of the right gut, you may ſee certaine right fibers added to the tranſverſe to ſtrengthen them, leſt theſe guts ſhould chance to be broken and torne by the paſſage of hard excrements, and the laborious endevour of expulſion (ſpecially in brute beaſts.)

How the guts become fit to retaine.

Their length.

But if any aske, how they have retention, being they want oblique fibers, he may know that the *fæces* are retained in the right gut, by the force of the *Sphincter* muſcle, but oft times in the blind, by their hardneſſe and abundance, whereby they ſticke in the paſſage; but in the reſt, by reaſon of their conformation into many windings and turnings. The length of the guts, is ſeven times more than the length of the whole body; to this length they have windings, leaſt the nouriſhment ſhould quickly ſlide away, and leaſt men ſhould bee withdrawne by gluttony from action and contemplation. For ſo wee ſee it comes to paſſe in moſt beaſts, which have one Gut, ſtretched ſtraight out from the ſtomacke to the fundament; as in the Lynx and ſuch other beaſts of inſatiable gluttony, alwayes, like plants, regarding their food.

CHAP. XVI.

Of the Meſentery.

The ſubſtance magnitude,

Figure, Compoſure,

Number,

The connexion,

AFter the Guts followes the Meſentery, being partly of a fatty and partly of a ſpermaticke ſubſtance. The greatneſſe of it is apparent enough, although in ſome it be bigger, and in ſome leſſer according to the greatneſſe of the body. It is of a round figure and not very thicke. It is compoſed of a double coate ariſing from the beginning and roote of the *peritonæum*. In the midſt thereof it admits nerves from the Coſtall of the ſixt conjugation, veines from the *Vena Porta* or Gate veine; Arteries from the deſcendant artery, over and beſides a great quantity of fat and many glandulous bodyes, to prop vp the diviſion of the veſſels ſpred over it, as alſo to moiſten their ſubſtance. It is in number one, ſcituate in the middle of the guts, from whence it tooke its name. Yet ſome divide it into two parts, to wit, into the *Meſeræum*, that is, the portion interwoven with the ſmall guts, and into the *Meſocolon* which is joined with the Great. It hath connexion by its veſſells with the principall parts, by its whole ſubſtance with the guts, and in ſome ſort with the kidneies, from whoſe region it ſeemes to take its coats.

The temper.

It is of a cold and moiſt temper, if you have reſpect to his fatty ſubſtance; but if to the reſt of the parts, cold and drye.

The action and uſe.

The action and uſe of it is, to bind and hold together the guts, each in his place, leaſt they ſhould raſhly be folded together; and by the Meſeraicke veines (which they terme the hands of the Liver) carry the *Chylus* to the liver.

All the meſeraicke veines come from the liver.

In which you muſt note, that all the Meſeraicke ueines come from the liver, as we underſtand by the diſſection of bodyes; although ſome have affirmed, that there bee ſome veines ſerving for the nouriſhment of the guts, no wayes appertaining to the Liver, but which end in certaine Glandulous bodyes, diſperſed through the Meſentery, of whoſe uſe we will treat hereafter.

CHAP. XVII.

Of the Glandules in generall, and of the Pancreas, or ſweet bread.

Subſtance of the glandules,

Quantitie and figure,

A Glandule is a ſimple part of the body, ſometimes of a ſpongye and ſoft ſubſtance, ſometimes of a denſe and hard. Of the ſoft Glandules are the *Tonſillæ*, or Almonds, like in ſubſtance to blanched Almonds; the *Thymus*, *Pancreas*, *Teſticles*, *Proſtatæ*. But the denſe and hard are the *Parotides* and other like. The Glandules differ amongſt themſelues in quantity and figure, for ſome are greater than other ſome, and ſome are round and others plaine, as the *Thymus* and *Pancreas*.

Compoſition.

Number,

Others are compounded of veines, nerves, arteries, and their proper fleſh, as the Almonds of the eares, the milkie glandules in the breſts and the teſticles. Others want nerves, at leaſt which may be ſeene, as the *Parotides*, the axillarie, or thoſe under the armeholes and others. The number of glandules is uncertaine, by reaſon of the infinite multitude and variety of ſporting nature. You ſhall finde them alwayes in theſe places, where the great diviſions of veſſels are made; as in the middle ventricule of the braine, in the upper part of the Cheſt, in the Meſentery and other lik places.

Connexion.

Temper.

Action and uſe.

The ſubſtence of the *Pancreas*.

The ſite,

Although otherſome be ſeated in ſuch places, as nature thinkes needfull to generate and caſt forth of them a profitable humor to the creature; as the almonds at the roots of the tongue, the kernells in the dugs, the ſpermatick veſſels in the *ſcrotum* and at the ſides of the wombe; or where nature hath decreed to make emunctoryes for the principall parts, as behind the eares, under the armeholes, and in the groines. The connexion of glandules is not only with the veſſels of the parts concurring to their compoſition, but alſo with thoſe, whoſe diviſion they keep and preſerve. They are of a cold temper, wherefore Phiſitions ſay the blood *recrudeſcere*, (i) to become raw againe in the dugs, when it takes upon it the forme of milke. But of theſe ſome have action, as the almonds, which poure our ſpattle uſefull for the whole mouth, the dugs milke, the Teſticles ſeed; others, uſe onely as thoſe which are made to preſerve, vnderprop and fill vp the diviſions of the veſſels. Beſides this we have ſpoken of glandules in generall, we muſt know that the *Pancreas* is a glandulous and fleſh-like body, as that which hath every where the ſhape and reſemblance of fleſh. It is ſituate at the flat end of the liver, under the *Duodenum* with which it hath great connexion, and under the gate-veine, to ſerve as a bulwarke, both to it and the diviſions thereof, whilſt it fills up the emptie ſpaces, betweene the veſſels themſelves, and ſo hinders, that they be not pluckt aſunder, nor hurt by any violent motion, as a fall, or the like.

CHAP. XVIII.

Of the Liver.

What the liver is.

Its ſubſtance and quantity.

Why cowards have great livers.

HAving gone thus farre, order of diſſection now requires, that we ſhould treate of the diſtribution of the gate veine; but becauſe it cannot well be underſtood unleſſe all the nature of the liver from whence it ariſes, be well knowne, therefore putting it off to a more fit place, we will now ſpeake of the Liver. Wherefore the liver (according to *Galens* opinion, *lib. de form. fœtus*) is the firſt of all the parts of the body, which is finiſhed in conformation, it is the ſhoppe and Author of the bloud, and the originall of the veines; the ſubſtance of it, is like the concrete mudde of the bloud, the quantitie of it is diverſe, not onely in bodies of different, but alſo of the ſame ſpecies; as in men amongſt themſelves, of whom one will bee gluttonous and fearefull, another bold, and temperate, or ſober; for hee ſhall have a greater liver than this, becauſe it muſt receive and concoct a greater quantitie of *Chylus*: yet the liver is great in all men, becauſe they have need of a great quantitie of bloud for the repairing of ſo many ſpirits & the ſubſtantificke moiſture, which are reſolved and diſſipated in every moment by action and contemplation. But there may bee a a twofold reaſon given, why ſuch as are fearefull have a larger liver. The firſt, is becauſe in thoſe the vitall facultie (in which the heate of courage and anger reſides) which is in the heart, is weake; and therefore the defect of it muſt be ſupplied by the ſtrength of the naturall facultie. For thus nature is accuſtomed to recompence that which is wanting in one part, by the increaſe and acceſſion of another. The other reaſon is, becauſe cold men have a great appetite, for by *Galens* opinion *In arte parva*, coldneſſe increaſes the appetite; by which it comes to paſſe that they have a greater quantitie of *Chylus*, by which plenty the liver is nouriſhed, and growes larger. Some beaſts, as Dogges, and ſwine, have the liver divided into five or more Lobes, but a man hath but one Lobe, or two, or three at the moſt; and theſe not ſo much diſtinguiſhed, as which cheariſh the upper and hollow region of the ventricle, with embracing to helpe forward the worke of concoction. Therefore the liver is almoſt content with one Lobe, although it is alwayes rent with a ſmall diviſion, that the umbilicall veine pearcing into the roots and ſubſtance of it, may have a free paſſage; but alſo oftentimes there is as it were a certaine ſmall lobe of the liver, laid under that umbilicall veine, as a cuſhion.

The figure. The figure of the liver is gibbous; riſing up and ſmooth towards the Midriffe; towards the ſtomacke is the *ſimous* or hollow ſide of it ſomewhat unequall, and rough by reaſon of the diſtance of the Lobes, the originall of the hollow veine, and the ſite of the bladder of the Gall.

The compoſure. The veſſels. The compoſition of the liver is of veines, nerves, arteryes, the coate and proper ſubſtance thereof which we call the groſſe and concreet blood, or *Parenchyma.* Veines and arteryes come to it from the navell; but nerves immediatly from theſe which are diffuſed over the ſtomack according to *Hippocrates*; yet they penetrate not very deep into its ſubſtance, for it ſeemes not to ſtand in neede of ſuch exact ſenſe, but they are diſtributed upon the coate and ſurface thereof, becauſe this part made for diſtribution over the whole body, keepes to it ſelfe no acrid or maligne humor, for the perception of which it ſhould neede a nerve, although the coate inveſting it, ſends many nervous fibers into its ſubſtance, as is apparent by the taking away of the coate from a boiled liver; we muſt thinke the ſame of the other entrals. The coate of the liver is from the *Peritonæum*, waxing ſmall from the umbilicall veine, when it divides it ſelfe for the generation of the gate and hollow veines, as is obſerved by *Galen, lib. de format. Fætus.* **The number and ſite.** The liver is onely one, ſituate in the greater part on the right ſide, but with the leſſer part on the left, quite contrary to the ſtomacke. **The connexion.** Its chiefe connexion is with the ſtomacke, and guts, by the veines and membranes of the *Peritonæum*; by the howllow veine and artery, with the heart; by the nerve with the braine, and by the ſame ligatures with all the parts of the whole body. **The temper.** It is of a hot and moiſt temper, and ſuch as have it more hot, have large veines and hot bloud; but ſuch as have it cold, have ſmall veines, and a diſcoloured hew. **The action.** The Action of the Liver is the converſion of the *Chylus* into bloud, the worke of the ſecond concoction. For although the *Chylus* entring into the meſeraicke veines, receive ſome reſemblance of bloud, yet it acquires not the forme and perfection of bloud, before it be elaborate, and fully concoct in the liver. **The ligaments** It is bound and tied with three ſtrong ligaments, two on the ſides in the midſt of the baſtard ribs, to beare up its ſides, and the third more high and ſtrong, deſcending from the breaſt-blade, to ſuſtaine its proper part, which with its weight would preſſe the lower orifice of the ſtomacke, and ſo cauſe a falling or drawing downe of the ſternon and coller bone. And thus much may ſuffice for its proper ligaments, for we before mentioned its common, the veines, arteries, nerves, and coate of the *Peritonæum*, by which it is knit to the loines, and other naturall parts. But wee muſt note, that beſides theſe three proper ligaments, the liver is alſo bound with others to the baſtard ribs, os *Sylvius* obſerves in his Anatomicall obſervations, and *Hollerius* in his Practiſe, *Cap. de Pleuritide.*

CHAP. XIX.

Of the bladder of the Gall.

The ſubſtance, greatneſſe, and figure thereof NOw wee muſt come to the bladder of the Gall, which is of a nervous ſubſtance, and of the bigneſſe of a ſmall peare; it is of figure round, with the bottome more large, but the ſides and mouth more narrow and ſtraite. **The compoſition.** It is compoſed of a double coate, one proper, conſiſting of three ſorts of fibers, the other from the *peritonæum.* It hath a veine from the *Porta* or gate veine, and an artery from that which is diffuſed into the liver, and a nerve from the ſixt conjugation. **Number and connexion.** It is but one and that hid on the right ſide under the greater lobe of the liver, it is knit with the touching of its own body, and of the paſſages and channels made for the performance of its actions with the liver, and in like manner with the *Duodenum*, and not ſeldome with the ſtomack alſo, by another paſſage; & to conclude to all the parts by its veines, nerves, arteries, and common coate. **Temper.** It is of a cold temper, as every nervous part is. **Action.** The action of it is to ſeparate from the liver the cholericke humor, and that excrementitious, but yet naturall by the helpe of the right fibers, for the purifying of the bloud, and by the oblique fibers, ſo long to keepe it being drawne, untill it begin to become troubleſome in quantitie, qualitie, or its whole ſubſtance, and then by the tranſverſe fibers, to put it downe into the *Duodenum* to provoke the expulſiue facultie of the guts. I know *Fallopius* denies the texture of ſo many fibers, to be the miniſter of ſuch action to the gall. But *Veſalius* ſeemes ſufficiently to have anſwered him

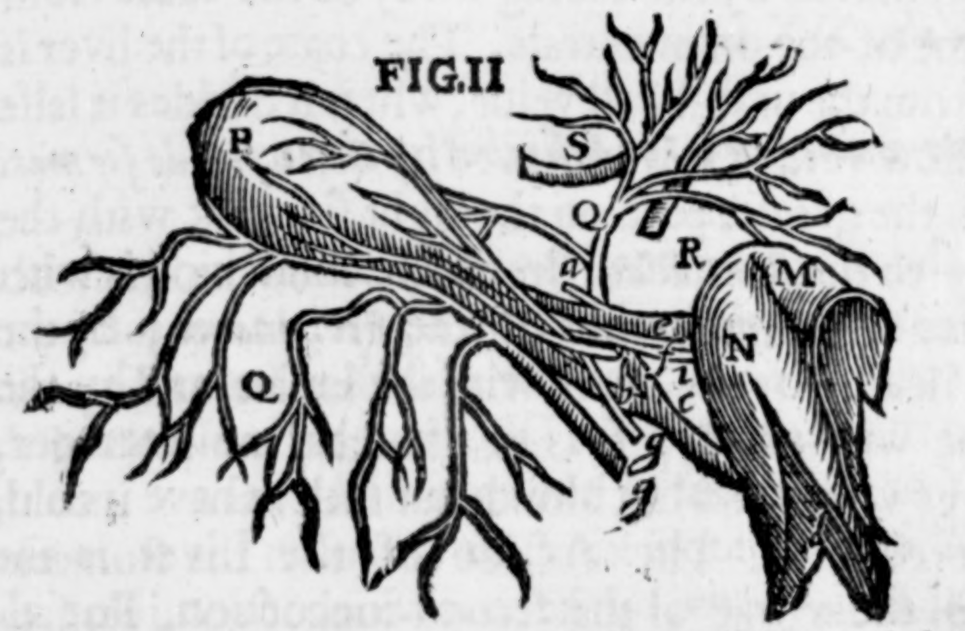
The channels of the gall.

Lib. 2. de temper.

him. The bladder of the gall hath divers channels, for comming with a narrow necke, even to the beginning of the gate veine, it is divided into two paſſages, the one whereof ſuffering no diviſion is carried into the *Duodenum*, vnleſſe that in ſome it ſend another branch into the bottome of the ſtomack, as is obſerved by *Galen*; which men have a miſerable and wretched life, being ſubject to cholericke vomitings, eſpecially when their ſtomackes are empty, with great paines of their ſtomacke and head, as is alſo obſerved by *Galen Cap.* 74. *Artis Med.* The other comming out of the body of the liver devides it ſelfe into two or three paſſages, againe entering the ſubſtance of the liver, is divided with infinite branches, accompanying ſo many branches of the gate veine through the ſubſtance of the liver, that ſo the blood unleſſe it be moſt elaborate and pure, may not riſe into the hollow veine, all which things Diſſection doth manifeſtly teach.

The ſixth Figure of the bladder of the Gall.

FIG.II



M. The *Pylorus* joyned to the *Duodenum*.

N. the *Duodenũ* joyned to the *Pylorus*

P. ſhewes the bottome of the bladder of the gall.

QQ. the holes of the bladder of gall diſperſed through the liver, betwixt the rootes of the hollow and gate veines. R. the roote of the gate veine in the liver. S. the root of the hollow veine in the liver.

a. the concourſe or meeting of the paſſages of choller into one branch. *b*. the necke of the bladder into which the paſſage is inſerted. *c*. the paſſage of the gall into the *Duodenum*. *d*. the *Duodenum* opened, to manifeſt the inſertion of the *porus biliaris*. *e*. an arterie going to the hollow part of the liver, and the bladder of the gall. *f*. a ſmall nerve belonging to the liver and the bladder of gall, from the ribbe branch of the ſixth paire. *gg*. the cyſticke twins from the gate veine.

Chap. XX.

Of the Spleene or Milt.

BVt becauſe we cannot well ſhew the diſtribution of the gate veine, unleſſe the ſpleene be firſt taken away, and removed from its ſeate; therefore before we go any further, I have thought good to treate of the ſpleene. Therefore the ſpleene is of a ſoft, rare, and ſpongious ſubſtance (whereby it might more eaſily receive and drinke up the dreggs of the bloud from the liver) and of a fleſh more blacke than the liver. For it reſembles the colour of its muddy bloud, from which it is generated. It is of an indifferent greatneſſe; but bigger in ſome, than in otherſome, according to the diverſe temper and complexion of men. It hath, as it were, a triangular figure, gibbous on that part, it ſtickes to the ribbes and midriffe, but hollow on that part next the ſtomacke. It is compoſed of a coate, the proper fleſh, a veine, artery, and nerve. The membrane comes from the *peritonæum*, the proper fleſh from the *fæces* or dregges of bloud, or rather of the naturall melancholy humor, with which it is nouriſhed. The fourth branch of the *vena porta*, or gate veine, lends it a veine; the firſt branch of the great deſcendant artery preſently after the firſt entrance without the Midriffe, lends it an arterie. But it receives a nerve from the left coſtall, from the ſixt conjugation on the inner part, by the rootes of the ribs; & we may manifeſtly ſee this nerve, not only diſperſing it ſelfe through the coate of the liver, but alſo penetrating with its veſſels the proper fleſh thereof, after the ſelfeſame manner, as we ſee it is in the heart and lungs. It is one in number, ſituate on the left ſide, betweene the ſtomacke and the baſtard ribs, or rather the midriffe which deſcends to their rootes. For it oft times cleaves to the midriffe on its gibbous part, by a coate from the *peritonæum*, as alſo on the hollow part to the ſtomacke, both by certaine veines which ſends it into the ventricle, as alſo by the kall. It hath connexion, either primarily, or ſecundarily, with all the parts of the body, by theſe its veſſels.

The ſubſtance

Magnitude.

Figure.

Compoſition.

Number, and ſite.

Connexion.

Temper and uſe.

It is of a cold and drie temper; the action and uſe of it is to ſeparate the melancholicke humor, which being feculent and droſſie, may be attenuated by the force of many atteries diſperſed through its ſubſtance. For by their continuall motion, and native heate, which they carrie in full force with them from the heart, that groſſe bloud puts off its groſſeneſſe, which the ſpleene ſends away by paſſages fit for that purpoſe, retaining the ſubtler portion for its nouriſhment. The paſſages by which it purges it ſelfe from the groſſeneſſe of the melancholy bloud, are a veine aſcending from it into the ſtomacke to ſtirre up the appetite by its ſoureneſſe, and ſtrengthen the ſubſtance thereof by its aſtriction; and alſo another veine, which ſometimes from the ſpleene branch, ſometimes from the gate veine, plainely under its orifice, deſcends to the fundament, there to make the Hærrhoidall veines.

Chap. XXI.

Of the Vena Porta, or Gate-veine, and the diſtribution thereof.

The ſubſtance and figure.

Compoſitiors. Number end Site.

Temper and Action.

The gate-veine, as alſo all the other veines, is of a ſpermaticke ſubſtance, of a manifeſt largeneſſe, of a round and hollow figure, like to a pipe or quill. It's compoſed of its proper coate, and one common from the *peritonæum*. It is onely one, and that ſituate in the ſimous or hollow part of the liver, from whence it breakes forth (or rather out of the umbilicall veine) into the midſt of all the guts, with which it hath connexion, as alſo with the ſtomacke, ſpleen, *ſphincter* of the fundament and *Peritonæum*, by the coat which it receives from thence. It is of a cold and dry temper. The Action of it is, to ſucke the *Chylus* out of the ventricle and guts, and ſo to take and carry it to the Liver, untill it may carry back the ſame turned into blood for the nutriment of the ſtomacke, ſpleen and guts.

Diviſion thereof into 6 branches of which 4 ſimple.

1

Cyſtica gemella.

2

Gaſtrica.

This Gate veine comming out of the ſimous part of the liver, is divided into ſixe branches, that is 4 ſimple and two compound, againe divided into many other branches. The firſt of the ſimple aſcends from the fore part of the truncke to the bladder of the Gall by the paſſage of the Choller (and are marked with *g. g.*) with a like arterye for life and nouriſhment, and this diſtribution is knowne by the name of the *Cyſtica gemella* or Cyſticke twins. The ſecond is called the *Gaſtrica* or ſtomack veine ariſing in like manner from the fore part of the truncke is carried to the *Pylorus* and the ſimous or backe part of the ſtomacke next to it.

3

Gaſtrepiplois.

The third is called *Gaſtrepiplois*, the ſtomacke and kall veine which comming from the right ſide of the gate veine goes to the gibbous part of the ſtomacke next to the *Pylorus* and the right ſide of the kall.

4

Inteſtinalis.

Two compound.

The fourth going forth from behind and on the right hand of the gate veine, aſcends above the roote of the Meſeraicke branch, even to the beginning of the gut *Ieiunum*, along the gut *Duodenum*, from whence it is called *Inteſtinalis*, or the gut-veine. And theſe are the foure ſimple branches. Now we will ſpeake of the compound.

1

Ramus ſplenicus ſending forth.

1

Coronalis.

The firſt is the ſpleenicke, which is divided after the following manner. For in its firſt beginning and upper part, it ſends forth the *Coronalis*, or crowne veine of the ſtomacke, which by the backe part of the ſtomacke aſcends into the upper and hollow part thereof; to which place, as ſoone as it arrives, it is divided againe into two branches, the one whereof climbs up even to its higher orifice, the other deſcends downe to the lower, ſending forth by the way other branches to the fore and backe parts of the ſtomacke. Theſe engirt and on every ſide incompaſſe the body of the ventricle, for which cauſe they are named the crowne veines.

2

Hæmorrhoidalis interna.

I have ſometime obſerved this comming-forth of the truncke, a little above the orifice of the ſplenicke branch. But this ſame ſplenicke branch on its lower part, produces the branch of the Hæmorroidall veines, which deſcending to the fundament above the left ſide of the loines, diffuſes a good portion thereof into the leaſt part of the collicke gut, and the right gut, at the end whereof it is often ſeene to be divided into five Hæmorrhoidall veines, ſometimes more, ſometimes leſſe.

Sylvius writes that the Hæmorrhoidall branch deſcends from the meſentericke, and truly we have ſometimes obſerved it to have beene ſo. Yet it is more ſutable to reaſon, that it ſhould deſcend from the ſplenicke, not onely for that we have ſeene with our eyes that it is ſo, but alſo becauſe it is appointed by nature for the evacuation of the excrementitious melancholike humor. But this ſame ſplenick branch out of the middle almoſt of its upper part produces the third branch going to the gibbous part of the ſtomacke, and the kall; they terme it the greater, middle and left *Gaſtrepiplois*. But on the lower part towards the ſpleene it produces the ſimple *Epiplois*, or kall-veine, which it diffuſes through the left ſide of the kall. Moreover from its upper part, which touches the liver, it ſends forth a ſhort branch called *vas breve*, or *venoſum*, to the upper orifice of the ventricle for ſtirring up the appetite.

3. *Gaſtrepiplois major ſiniſtra.*

4. *Epiplois ſimplex.*

5. *Vas breve ſeu venoſum.*

Wee have oftentimes and almoſt alwayes obſerved, that this veinie veſſell, which *Galen* calls *vas breve*, comes from the very body of the ſpleene, and is terminated in the midſt of the ſtomacke on the left ſide, but never peirces both the coates thereof. Wherefore it is ſomewhat difficult to find, how the melancholy juyce can that way be powred, or ſent into the capacitie of the ſtomacke. Now the ſplenicke branch, when it hath produced out of it thoſe five forementioned branches, is waſted and diſperſed into the ſubſtance and body of the ſpleene.

Lib. 4. de uſu partium.

Then followes another compound branch of the *vena porta*, called the meſentericke, which is divided into three parts; the firſt and leaſt whereof goes to the blind gut, and to the right and middle part of the collicke-gut, divided into an infinite multitude of other branches. The ſecond and middle is waſted in the *Ileon*; as the third and greater in the *Ieiunum* or empty gut. It is called Meſentericke becauſe it is diffuſed over all the Meſentery; as the ſplenicke is in the ſpleen. And thus much wee have to ſay of the diviſion of the gate veine, the which if at any time thou ſhalt find to be otherwiſe, than I have ſet downe, you muſt not wonder at it; for you ſhall ſcarce finde it the ſame in two bodies, by reaſon of the infinite varietie of particular bodies, which (as the Philoſophers ſay) have each their owne, or peculiar gifts. Our judgement is the ſame of other diviſions of the veſſels. Yet wee have ſet downe that which wee have moſt frequently obſerved.

2 *Ramus meſentericus*, devided into three parts.

CHAP. XXII.

Of the originall of the Artery, and the diviſion of the branch, deſcending to the naturall parts.

THoſe things being thus finiſhed and conſidered, the guts ſhould be pulled aaway, but ſeeing that if we ſhould do ſo, we ſhould diſturbe and looſe the diviſion of the artery deſcending to the naturall parts; therefore I have thought it better to handle the diviſion thereof, before the guts be pluckt away. Therefore we muſt ſuppoſe, according to *Galens* opinion, that as all the veines come from the liver, ſo all arteries proceede from the heart. This preſently at the beginning is divided into two branches, the greater whereof deſcends downewards to the naturall parts upon the ſpine of the backe, taking its beginning at the fifth *vertebra* thereof, from whence it goes into the following arteries. The firſt called the intercoſtall, runnes amongſt the intercoſtall muſcles, and the diſtances of the ribs, and ſpinall marrow, through the perforations of the nerves on the right and left hand from the fifth true, even to the laſt of the baſtard ribs.

The originall of arteries. The diviſion of the great deſcendant artery, is into theſe.

1 *Arteria intercoſtalis.*

This in going this progreſſe makes 7. litle branchings, diſtributed after the forementioned manner, and going forth of the truncke of the deſcendant over againſt each of the intercoſtal Muſcles.

The ſecond being parted into two goes on each ſide to the midriffe, whence it may be called, or expreſſed by the name of the *Diaphragmatica* or *Phrenica* (*i*) the midriffe arterye. The third being of a large proportion, ariſing from the upper part of the artery preſently after it hath paſſed the midriffe, is divided into two notable branches, whereof on goes to the ſtomacke, ſpleene, kall, to the hollow part of the liver

2 *Phrenica.*

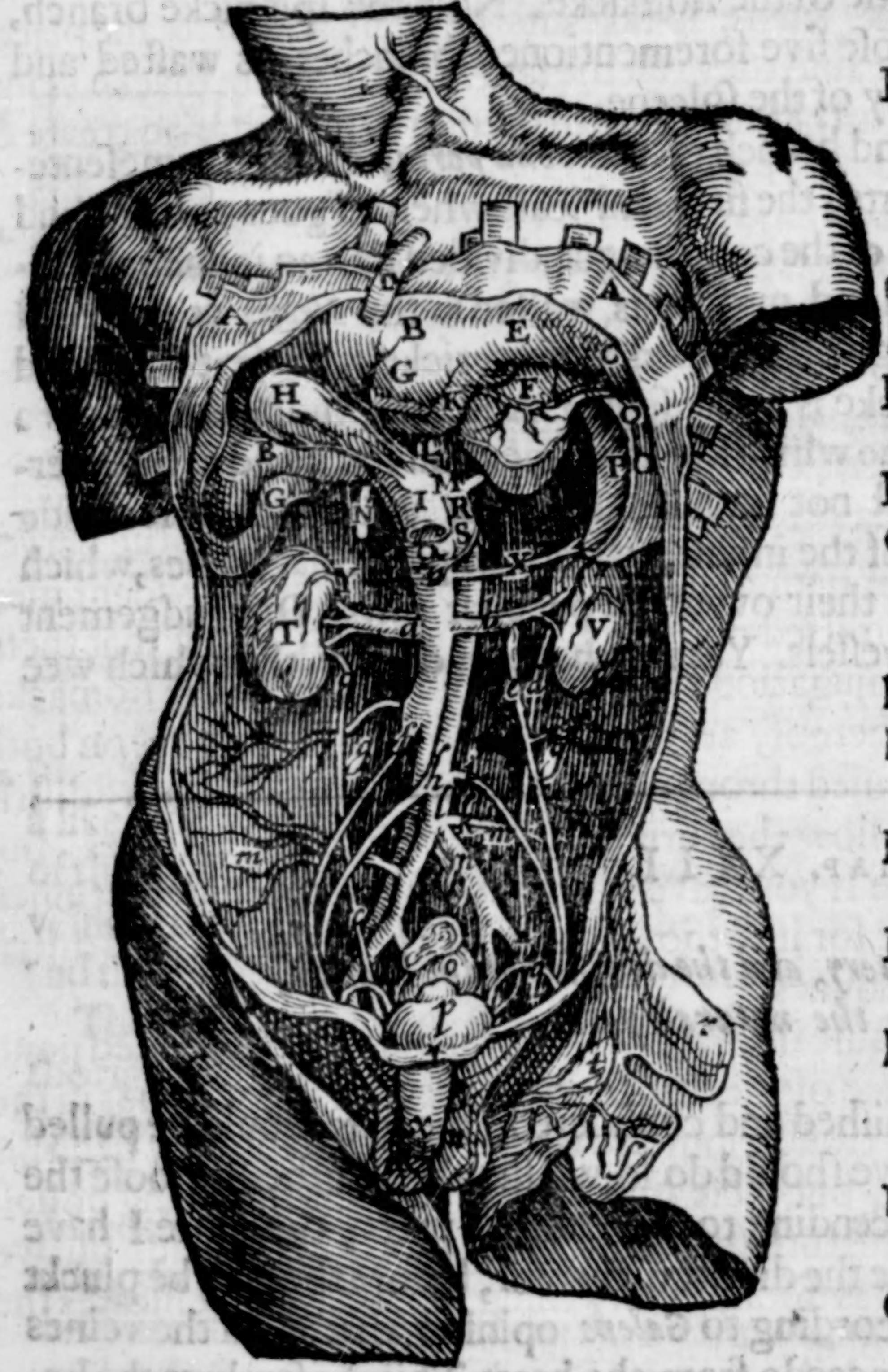
3. *Cœliaca.*

liver and the gall; the other is ſent forth to the meſentery and guts after the ſame manner, as wee ſaid of the meſeraicke veines, wherefore it is called the *Cœliaca*, or ſtomacke arterie. But wee muſt note, all their mouthes penetrate even to the innermoſt coate of the guts, that by that meanes they may the better and more eaſily attract the *Chylus* contained in them.

4. *Emulgent.* The fourth is carried to the reines, where it is named the reinall or emulgent, becauſe it ſuckes fit matter from the whole maſſe of bloud.

5. *Spermatica.* The fifth is ſent to the teſticles with the preparing ſpermaticke veines, whence alſo it is named the ſpermaticke artery, which ariſes on the right ſide, from the very trunke of the deſcendant artery; that it may aſſociate the ſpermaticke veine of the ſame ſide, they runne one above another, beneathe the hollow veine, wherefore wee muſt have a great care whileſt wee labour to lay it open, that wee doe not hurt and breake it.

The ſeventh Figure of the lower belly.



A.A. the midriffe turned backe with the ribs and the *peritonæum*.
BB. the cave or hollow part of the liver, for the liver is lifted up that the hollow part of it may bee better ſeene.
C. the leaſt ligament of the liver.
D. the umbilicall veine.
E. the hollowneſſe in the liver, which giveth way to the ſtomacke.
F. the left orifice of the ſtomacke.
GG. certaine knubs, or knots, and impreſſions in the hollow part of the liver.
H. the bladder of gall.
I. the gate-veine, cut off, and branches which goe to the bladder of gall.
K. a nerve of the liver comming from the ſtomachicall nerve.
L. an artery common to the liver and bladder of gall.
M. a nerve common alſo to them both, comming from the right *coſtall* nerve of the ribs.
N. the paſſage of the gall to the guts cut off.
OO. the hollow of the fore parts of the ſpleene.

P. they line where the veſſels of the ſpleene are implanted. Q. the trunke of the hollow veine. R. the trunke of the great artery. S. the *Cœliacall* artery cut off. T. V. the kidneies yet wrapped in their membrane. X. Y. the fatty veines called *venæ adipoſa*. *a.b* the emulgent veines with the arteries under them. *cc* . *dd*. the ureter from either kidney to the bladder. *e.f.* the ſpermaticall veines to the teſticles, the right from the hollow veine, the left from the emulgent. *g.g.* veines comming from the ſpermaticall to the *peritonæum*. *h.i.* the ſpermaticall arteries. *k.* the lower meſentericall artery. *l.* the aſcending of the great arterie above the hollow veine, and the diviſion of it, and the hollow veine into two trunkes. *m.* the arterie of the loines called *lumbaris*. *n.* the holy artery called *ſacra*. *o.* a part of the right gut, *p.* the bladder of urine. * the connexion of the bladder with the *peritonæum*. *q.* a part of the veſſels which leade the ſeed from the teſticles, is here reflected. *r.ſ.* the *ſcrotum*, or cod, that is, the skinne that inveſts the yard and teſticles. *t.* the fleſhie pannicle or membrane which is under the cod. *u.* the coate which is proper to the teſticles with his veſſels. *x.* a part of the yard excoriated or flayed, and hanging downe.

The

Hæmorrhoidalis ſeu meſenterica inferior.

The ſixth going from the fore and upper part of this deſcendant arterie, deſcends with the Hæmorroidall veines to the fundament; preſently from his beginning, ſending forth certaine branches alongſt the collicke gut, which by *anaſtomoſis* are united with other branches of the *Cœliacall* arteries; for whoſoever ſhall looke more attentively, he ſhall often obſerve that veines are ſo united amongſt themſelves, and alſo arteries, and ſometimes alſo the veines with the arteries. For an *anaſtomoſis* is a communion and communicating of the veſſels amongſt themſelves, by the application of their mouthes, that ſo by mutuall ſupplies they may eaſe each others defects. But they call this the lower meſeraicke arterie.

7 Lumbaris.

The ſeventh proceeding from the truncke with ſo many branches as there be *vertebra's* in the loines, goes to the loines and the parts belonging to them, that is, the ſpinall marrow of that part, and other parts encompaſſing theſe *Vertebra's*, whereupon it is ſtiled the *Lumbaris* or Loine Artery.

8 Iliaca.

The eight maketh the Iliacke arteries, until ſuch time as it departs from the *Peritonæum* where the Crurall Arteryes take their originall. This Iliacke Artery ſends many divarications towards the Holy bone where it takes its beginning, and to the places lying nere the Holy bone, which becauſe they run the ſame courſe as the Iliacke veins, for brevities ſake, we will let paſſe further mention of them, till we come to treate of the Iliacke veines.

CHAP. XXIII.

Of the diſtribution of the Nerves to the naturall parts.

The originall of the nerves which are caryed to the naturall parts.

IT remaines, that before the bowels be taken away, we ſhew the nerves ſent to the entrailes and naturall parts, that as wiſe and provident men we may ſeeme to have omitted nothing. Firſt we muſt know that theſe nerves are of the ſixt conjugation, which deſcend as well to the ſtomacke all alongſt the Gullet and the ſides thereof, as thoſe at the roots of the ribbes on both ſides within. But when they are paſſed through the Midriffe, thoſe which are diſtributed amongſt the naturall parts follow the turnings of the veines and arteryes, but ſpecially of the arteryes. Wherefore if you have a mind to follow this diſtribution of the nerves, you muſt chiefely looke for it in thoſe places, in which the artery is diſtributed amongſt the Guts above the loynes.

Their magnitude and uſe.

Theſe nerves are but ſmall, becauſe the parts ſerving for nutrition, needed none but litle nerves, for the performance of the third duty of the nerves, which is in the diſcerning and knowing of what is troubleſome to them. For unleſſe they had this ſenſe, there is nothing would hinder, but theſe bowels neceſſary for life, being poſſeſſed with ſome hurtfull thing, the creature ſhould preſently fall downe dead; but we have this benefit by this ſenſe, that as ſoone as any thing troubles and vellicates the bowels, we being admoniſhed thereof may looke for helpe in time.

And beſides if they were deſtitute of this ſenſe, they might be gnawne, ulcerated and putrified by the raging acrimony of the excrements falling into and ſtaying in them; but now (by meanes hereof) as ſoone as they find themſelues pricked, or pluckt, preſently by the expulſive faculty they endeavoure to expell that which is troubleſome, and ſo free themſelves of preſent and future dangers.

CHAP. XXIIII.

The manner of taking out the Guts.

WHen the Guts are to be taken out, you muſt begin with the Right Gut. And you muſt divide it, being firſt ſtraitly tyed in two different places, at a juſt diſtance about foure fingers from the end, with a ſharp knife betweene the two ligatures. Then you muſt ſhew its proper coats, and fibers, and that common one which it hath from the *Peritonæum*. This being done, you muſt in like manner binde the truncke of the gate veine as neere the originall as you can; that ſo all his branches being in like manner tyed there may be no feare of effuſion of blood: you muſt doe the like with the Cæliacke Arterye at the left kidney, and in the lower Meſentericke, which deſcends to the Right gut with the Hæmorrhoidall veines. This being done, pul away the guts even to the *Duodenum*, which being in like manner tyed in two places, which ought to be below the inſertion of the *Porus Cholagogus* or paſſage of the Gall, that you may ſhew the oblique inſertion thereof into that gut; for the obliquity of its inſertion is worth obſervation, as that which is the cauſe that the Gall cannot flow backe into its bladder, by the compreſſion of this Gut from below upwards. Then all theſe windings of the Guts may be taken away from the body.

Chap. XXV.

The Originall and diſtribution of the deſcendent Hollow veine.

The originall of the hollow veine. It is divided into two trunkes.

Becauſe the reſt of the naturall parts, do almoſt all depend upon the deſcendent Hollow veine, therefore before we goe any further, we will ſhew its originall and diſtribution. We ſaid before that all veines proceeded from the Liver, but yet in divers places. For the gate veine goes out of the hollow part, and the Hollow veine out of the Gibbous part of the liver, which going forth like the body of a tree, is divided into two great branches, the leſſer of which goes to the vitall and animall parts, and the extremities of theſe parts, as we ſhall ſhew in their place. The greater deſcending from the backe part of the Liver above the *Vertebra's* of the loines to the parts beneath, goes in the manner following. The firſt diviſion thereof is to the membranes of the reines, which come from the *Peritonæum*. Wherefore there it produces the *Venæ adipoſæ*, or fatty veines, ſo called becauſe they bring forth a great quantity of fat in thoſe places; Of theſe fatty veynes, there is a diverſe originall, for the right doth oftentimes ariſe from the right emulgent becauſe it is higher; but the leſſe comes from the very truncke of the hollow veine, becauſe the emulgent on that ſide is lower, and you ſhall ſcarſe ſee it happen otherwiſe.

The diviſion of the greater branch of the hollow veine.

1. *Adipoſa.*

2. *Emulgens.*

The ſecond being the Kidney or Emulgent veines, go to the Reines, Which at their entrance, or a little before, is devided into two branches, like as the Artery is, the one higher, the other lower; and theſe againe into many other through the ſubſtance of the Kidneys, as you may learne better by ocular inſpection, than by booke. They are thick and broad that the ſerous humor may without impediment have freer paſſage. Their originall is different, for the right Emulgent, often times comes forth of the Hollow veine ſomewhat higher than the left; that ſeeing their office and duty is to purge the maſſe of blood from the chollericke and ſerous humor, that if any part thereof ſlide by the one, it may not ſo ſcape, but fall as it were into the other. Which certainly would not have happened if they had bin placed the one juſt oppoſit to the other. For the Serous or wheyiſh humor would have ſtayed as equally ballanced or poiſed, by reaſon of the contrariety of the action and traction, or drawing therof. But we muſt remember that in diſſecting of bodies, I have oft times found in ſuch as have beene troubled with the ſtone, ſeven Emulgent veines and ſo many arteries; foure from the left ſide comming from diverſe places, of which the laſt came from the Iliacke; three from the right hand likewiſe in diverſe places.

3 *Spermatica.*

The third diviſion is called the ſpermaticke or ſeed veine, it goes to the Teſticles; the originall thereof is thus, that the right ariſes on the fore part of the trunck of the hollow veine; but the left moſt commonly from the emulgent. Beſides you ſhall ſometimes finde that theſe have companions with them, to the right emulgent; but to the left another from the hollow veine, in ſome but on one ſide, in others on both. But alſo I have ſometimes obſerved the left emulgent to proceed from the ſpermaticke or ſeed veine.

4. *Lumbaris.*

The forth becauſe it goes to the loynes, is called *Lumbaris*; which in his originall and inſertion is wholy like the Artery of the loines. But there are 4 *Lumbares* or Loine veines on each ſide, that is, one in each of the 4 ſpaces of the 5 *Vertebras* of the loines.

5 Iliacæ, which are divided into.

1 *Muſculoſæ.*

2 *Sacræ.*

The fiſt diviſion makes the Iliacæ, until paſſing through the *Peritonæum*, they take the name of Crurall veines; Theſe are firſt divided into the Muſculous, ſo called, becauſe they goe to the oblique aſcendent and tranſverſe muſcles, and to the *Peritonæum*. Sometimes they have their originall from the end of the Trunck. And then the ſame Iliacæ are devided into the *Sacræ*, or holy, which goe to the ſpinall marrow of the Holy bone, through thoſe holes, by which the nerves generated of this marrow, have their paſſage.

3 *Hypogaſtricæ*, which produce the Hæmorrhoidales externæ.

Thirdly the *Iliacæ* are divided into the *Hypogaſtricæ* ſo called, becauſe they are diſtributed to all the parts of the *Hypogaſtrium*, or lower part of the lower belly, as to the right Gut, the muſcles therof, the muſculous skin, (in which place they often make the externall Hæmorrhoidall, ordained for the purging of ſuch blood as offends in quantity, as thoſe other [that is, the inward Hæmorrhoidall] which deſcend to the right Gut from the Gate veine by the ſpleenicke branch, ſerves for cleanſing of that which offends in qualitie) to the bladder and the necke thereof even to the end of the yard, to the wombe, and even to the necke of the wombe and utmuſt parts of the privities; from whence it is likely the courſes breake forth in weomen with child and virgins. But this ſame veine alſo ſends a portion of it without the *Epigaſtrium* by that perforation which is common to the ſhare and haunch bones, which ſtrengthened by meeting of the other internall Crurall veine deſcends even to the Hamme, but in the meane time by the way it is communicated to the muſcles of the thigh called *Obturatores* and other parts within. Fourthly, the *Iliacæ* produce the *Epigaſtricæ* which on both ſides from below aſcend according to the length of the right muſcles, ſpreading alſo by the way ſome branches to the oblique and tranſverſe muſcles and alſo to the *Peritonæum*. Fiftly, theſe *Iliacæ* produce the *Pudendæ* or veines of the privities becauſe they go in women to their privityes, and into men to the Cods, where they enter that fleſhy coat filled with veines, and goe to the skin of the yeard, they take there beginning under the *Hypogaſtricæ*.

4 *Epigaſtricæ.*

5 *Pudendæ.*

CHAP. XXVI.

Of the Kidneyes or Reines.

NOw follow the Kidneyes, which that they may bee more eaſily ſeene, (after that you have diligently obſerued their ſcituation) you ſhall diſpoile of there fat, if they have any about them, as alſo of the membrane they have from the *Peritonæum*. Firſt you ſhall ſhew all their conditions, beginning at their ſubſtance.

Their ſubſtance.
Magnitude.
Figure.
Compoſition.

The ſubſtance of the Kidneyes is fleſhy, denſe and ſolid, leaſt they ſhould be hurt by the ſharpnes of the urine; Their magnitude is large enough, as you may ſee. Their figure is ſomewhat long and round almoſt reſembling a ſemicircle, and they are lightly flatted above and below. They are partly hollow and partly gibbous; the hollow lyes next the hollow veine, and on this ſide they receive the emulgent veines and Arteryes, and ſend forth the ureters; there gibbous part lyes towards the loines. They are compoſed of a coate comming from the *Peritonæum*, their owne peculiar fleſh, with the effuſion of blood about the proper veſſels (as happens alſo in other entrails) generates a ſmall nerve, which ſpringing from the Coſtall of the ſixt conjugation is diffuſed to each Kidney on his ſide into the coat of the kidney it ſelfe, although others thinke it alwayes accompanies the veine and arterye.

But *Fallopius* that moſt diligent Author of Anatomye hath obſerued, that this nerve is not only oftentimes divaricated into the coat of the kidneyes, but alſo pierces into their ſubſtance. They are two in number that if the one of them ſhould by chance be hurt, the other might ſupply thoſe neceſſityes of nature, for which the Kidneys are made. They lye vpon the loynes at the ſides of the great veſſels, on which they depend by their proper veines and arteries; and they ſticke to them, as it were by a certaine ſecond coate, leſt that they might be ſhaken by any violent motions. Wherfore

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fore we may ſay that the Kidneyes have two coates, one proper adhering to their ſubſtance, the other as it were comming from the *Peritonæum* on that part they ſticke to it. The right Kidney is almoſt alwayes the higher, for thoſe reaſons I gave, ſpeaking of the originall of the Emulgent veſſels. **Columbus** ſeemes to thinke the contrary, but ſuch like controverſies may be quickly decided by the Eye. They have connexion with the principall veſſels by the veines, nerves and arteries, by the coates with the loines and the other parts of the lower belly, but eſpecially with the bladder by the ureters. They are of a hot and moiſt temper, as all fleſhy parts are. Their action is to clenſe the Maſſe of the blood from the greater part of the ſerous and cholericke humor. I ſaid the greater part, becauſe it is needfull that ſome portion thereof ſhould go with the alimentary blood to the ſollid parts, to ſerve in ſteed of a vehicle leſt otherwiſe it ſhould be too thicke.

Connexion.

Temper. Action.

Their ſtrainer.

Beſides you muſt note that in each kidney there is a cavitye bounded by a certaine membrane, incompaſſed by the diviſion of the emulgent veines and arteryes, through which the urine is ſtrained partly by the expulſive facultie of the kidneies, partly by the attractive of the ureters, which run through the ſubſtance of the kidneyes on the hollow ſide, no otherwiſe than the *Porus cholagogus* through the body of the Liver.

The ninth and tenth figure of the veſſels of ſeed and urine.

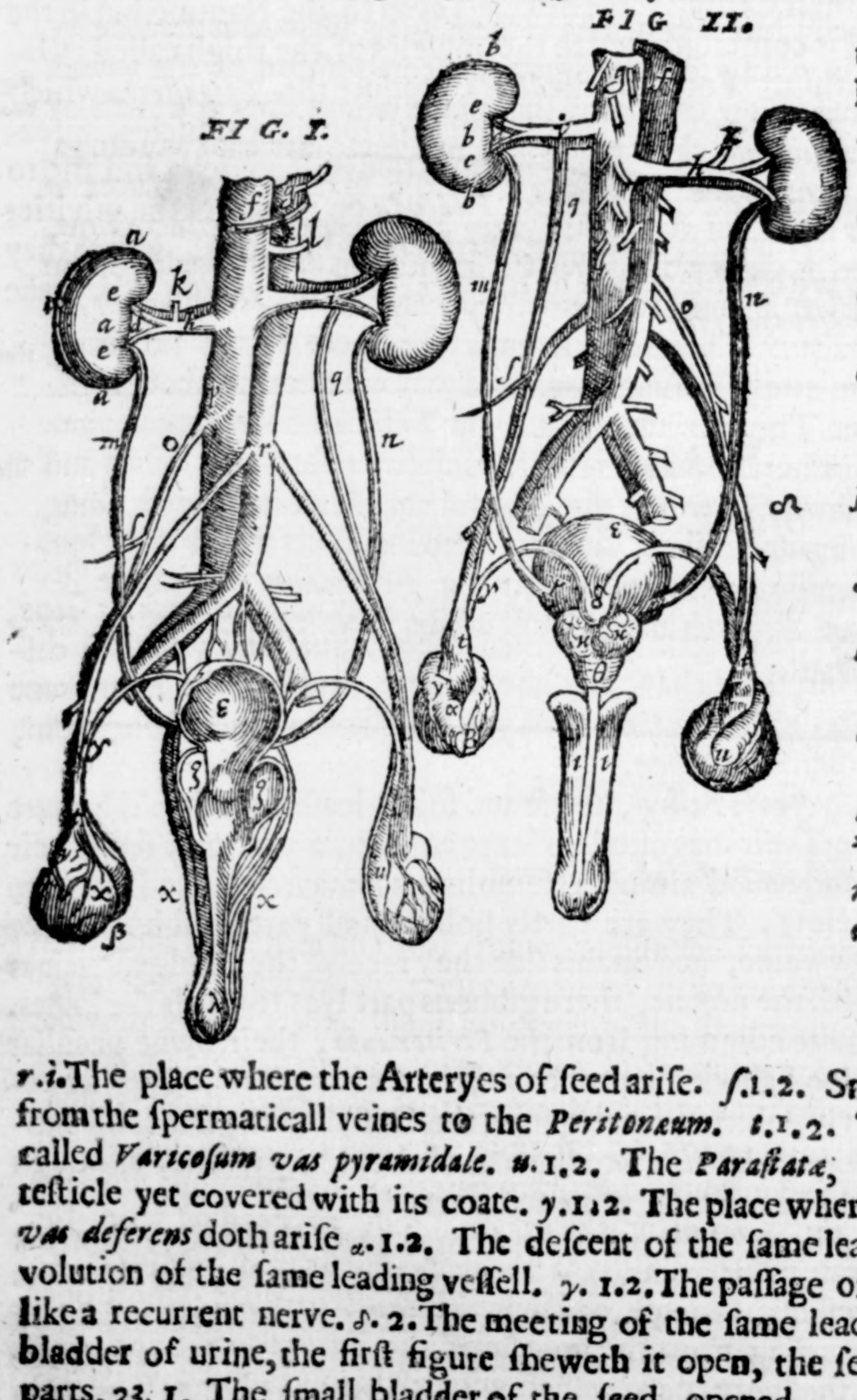


FIG. I.

FIG. II.

The firſt figure ſheweth the foreſide, the ſecond the hinder-ſide.

*a.a.a.*1. The forepart of the right kidney.
*b.b.b.*2. The backe part of the left kidney.
*c.*1. the outſide.
*d.d.*1.2. The inner ſide.
*e.e.*1.2. The two cavities wherinto the emulgent veſſels are inſerted.
*f.f.*1.2. The trunke of the hollow veine.
*g.g.*1.2. The trunke of the great artery.
*h.i.*12. The emulgent veine and artery.
*k.k.*1.2. The right fatty veine.
*l.*1. The left fatty veine.
*.1. The Cœliacall artery.
*m.n.*1.2. The ureters.
*o.p.q.*1.2. The right ſpermaticke veine which ariſeth neere *p.* the left neere *q.*

r.i. The place where the Arteryes of ſeed ariſe. *ſ.*1.2. Small branches diſtributed from the ſpermaticall veines to the *Peritonæum.* *t.*1.2. The ſpiry varicous body, called *Varicoſum vas pyramidale.* *u.*1.2. The *Paraſtatæ,* or *Epididymis.* *x.*1. The teſticle yet covered with its coate. *y.*1.2. The place where the leading veſſell called *vas deferens* doth ariſe *α.*1.2. The deſcent of the ſame leading veſſell. *β.* 1.2. The revolution of the ſame leading veſſell. *γ.* 1.2. The paſſage of the ſame veſſel reflected like a recurrent nerve. *δ.* 2. The meeting of the ſame leading veſſells. *ε.* 1.2. The bladder of urine, the firſt figure ſheweth it open, the ſecond ſheweth the backe parts. 33. 1. The ſmall bladder of the ſeed opened. *η.η.* 2. The Glandules called *Glandulæ Proſtatæ.* *θ.*2. The ſphincter muſcle of the bladder. *ιι.*[illegible]2. The two bodyes which make the ſubſtance of the yard. *κ.κ.*1. The veſſels which goe unto the yard and necke of the bladder. λ. 1. The paſſage which is common to the urine and ſeed, cut open. 4. 2. The implantation of the ureters into the bladder.

Chap. XXVII.

Of the ſpermaticke Veſſells.

Now we ſhould have ſpoken of the ureters, becauſe as wee ſayd before, they are paſſages derived from the Kidneyes to carry the urine to the bladder. But becauſe they cannot be diſtinguiſhed and ſhewed unles by the corrupting and vitiating the ſite of the ſpermaticke veſſels; therefore I have thought it better to paſſe to the explication of all the ſpermatick parts.

Their ſubſtance.
Quantity.

And firſt of all you muſt gently ſeparate them, (that ſo the declaration of them may be more eaſie & manyfeſt) and that from the coat which comes from the *peritonæum*, and the fat which inveſts them even to the ſhare-bone, having diligently conſidered their ſite before you ſeparate them. Then you ſhall teach that the ſubſtance of theſe veſſels, is like to that of the veines and arteryes. Their quantity is ſmall in thicknes, but of an indifferent length, by reaſon of the diſtance of their originall from the Teſticles. They are longer in men than in weomen, becauſe theſe have their Teſticles hanging without their belly, but weomen have them lying hid within their belly. Their figure and compoſure is wholy like the figure and compoſition of the veines and arteries, except in this one thing, that from that place where they goe forth of the great capacity of the *Peritonæum*, they are turned into many intricate windings, like crooked ſwolne veines, even to the Teſticles. That the ſpermaticke matter in that one tracte, which yet is no other than blood, may be prepared to concoction, or rather be turned into ſeed in theſe veſſells, by the irradiation of the faculty of the Teſticles. Theſe veſſells are ſixe in number, foure preparing, and two ejaculatory, of which we will ſpeake hereafter. Therefore on each ſide there be two preparing veſſels, that is, a veine and an artery, ariſing as we told you when we ſpoke of the diſtribution of the hollow veine. They are inſerted into the Teſticles through that coate which ſome call *Epididymis*, others *Darton*. Their ſite is oblique above the loines and flankes, whileſt they runne downe betweene the ends of the ſhare and hanch bone, they are knit to the parts lying under them, both by certaine fibers which they ſend from them, as alſo by the membrane they have from the *Peritonæum*. They have like temperature as the veines and Arteries have. Their action is to carry blood to the Teſticles, for generating of ſeed.

Figure and compoſure.

Number.

Site.

Chap. XXVIII.

Of the Teſticles, or Stones.

Their ſubſtance.
Magnitude and figure.
Compoſition.

The Teſticles are of a Glandulous, white, ſoft and looſe ſubſtance, that ſo they may the more eaſily receive the ſpermaticke matter: their magnitude and figure equall, and reſemble a ſmall pullets Egge ſomewhat flatted; Their compoſure is of veines, arteries, coats and their proper fleſh. Their veines and arteries proceed from the ſpermaticke veſſels, their nerves from the ſixth conjugation, by the roots of the ribbes and out of the holy bone. They are wrapped in foure coats, two whereof are common, and two proper. The common are the *Scrotum* or skin of the Cods, proceeding from the true skin; and the fleſhy coate, which conſiſts of the fleſhy Pannicle in that place receiving a great number of veſſells, through which occaſion it is ſo called. The proper coats are firſt the *Erythroïs* ariſing from the proceſſe of the *Peritonæum*, going into the *Scrotum* together with the ſpermaticke veſſels which it involues and covers; this appeares red both by reaſon of the veſſels as alſo of the Cremaſter muſcles of the Teſticles; Then the *Epididymis* or *Dartos* which takes its originall of the membrane of

The Coat *Erythroïs*

The *Epididymis*, or *Dartos*.

The Cremaſter muſcles.

Temper.

of the ſpermatick preparing veſſels. The fleſh of the Teſticles is as it were a certaine effuſion of matter about the veſſels, as we ſaid of other entrailes. But you muſt obſerve that the *Erythrois* encompaſſes the whole ſtone, except its head, in which place it ſticks to the *Epididymis* which is continued through the whole ſubſtance of the Teſticle. This *Epididymis* or *Dartos* was therefore put about the ſtones, becauſe the Teſticles of themſelves, are looſe, ſpongeous, cavernous and ſoft, ſo that they cannot ſafely be joyned to the ſpermaticke veſſels which are hard and ſtrong. Wherefore Nature that it might joyne extremes by a fit *Medium*, or meane, formed this coate *Epididymis*. This is ſcarſe apparent in weomen by reaſon of its ſmallneſſe. The two forementioned common coats, adhere or ſticke together by their veſſels not only amongſt themſelves, but alſo with the *Erythrois*. You muſt beſides obſerve the Cremaſter muſcles are of the ſaid ſubſtance with other muſcles, ſmall and thin, of an oblique and broad figure, ariſing from the membrane of the *Peritonæum*, which (as wee ſaid before) aſſumes fleſh from the flanks. Their compoſition is like that of other muſcles. They are two, one each ſide on. They are ſituate from the ends of the flanks, even to the ſtones. They have connexion with the proceſſe of the *Peritonæum* and Teſticles. Their temper is like that of other muſcles. Their action is to hang and draw up the Teſticles towards the belly, whence they are called, hanging muſcles. The Teſticles are moſt commonly two in number, on each ſide one, ſometimes there be three, ſometimes one alone, as it happens alſo in the Kidneies; for ſome have but one Kidney. They lye hid in the *Scrotum* at the very roots of the ſhare bone, connexed to the principall parts of their veſſels, with the necke of the bladder and yard; but by their coats they adhere to the parts from whence they have them. They are of a cold and moiſt temper, becauſe they are glandulous; although they may be hot by accident by reaſo[illegible]f the multitude of the veſſels flowing thither. Thoſe whoſe teſticles are more hot are prompt to venery, and have their privities and the adjacent parts very hairy, and beſides their teſticles are more large and compact. Thoſe on the contrary that have them cold are ſlow to venery, neither doe they beget many children, and thoſe they get are rather female than male, their priuities have litle haire upon them, and their teſticles are ſmall, ſoft and flat.

Action.

The action of the teſticles is to generate ſeed, to corroborate all the parts of the body, and by a certaine manly irradiation to breed or encreaſe a true maſculine courage. This you may know by Eunuches or ſuch as are Gelt, who are of a womaniſh nature, and are oftentimes more tender and weake than weomen. As *Hippocrates*, teaches by the example of the Scythians, *lib. de Aëre, locis et aquis.*

Chap. XXIX.

Of the varicous bodyes or Paraſtat's, *and of the ejaculatory veſſels and the glandulous or* Proſtates.

Their ſubſtance.

Here the Author ſpeakes otherwiſe then *Galen*.

Action.

THe varicous *Paraſtatæ* are nervous and white bodyes, like as the nerves, round and cloſe woven amongſt themſelves, they are ſtretched even from the top to the bottome of the teſticles, from whence preſently by their departure they produce the *Vaſa ejaculatoria*, or trading veſſels. But unleſſe we doe very well diſtinguiſh their names, wee ſhall ſcarſe ſhun confuſion. For that which I call *Paraſtatæ*, that is, as it were the head of the teſticle, being as it were like another ſtone, is called *Epididymis* by *Galen lib. 1. de ſemine*. But I by the example and authority of many Anatomiſts, underſtand by the *Epididymis* the proper coate of the teſticles, of which thing I thought good by the way to admoniſh you of. Their Action is by their crooked paſſages to hinder the ſeed from departing out of the preparing into the leading veſſels, before it ſhall be moſt perfectly laboured and concocted in theſe veſſels by the power and force of the teſticles. For in the firſt windings, the blood lookes pure; but in the laſt it is not ſo red, but ſomewhat whitiſh. For Nature commonly doth thus delay the matter in its paſſage either by ſtraitneſſe, or obliquity, which it deſires to make more perfect and elaborate by any new concoction; this we may learne by the foldings of the *Rete mirable*, the windings of the Guts, the wrinckles in the bottome of the ſtomacke, the ſtraitneſſe of the *Pylorus*, the capillary veines diſperſed through the body of the Liver; certainly nature hath intended ſome ſuch thing in the making of the ſpermaticke veſſels. Their quantity is viſible, and figure round tending ſomewhat to ſharpneſſe. They are compoſed of veines, nerves and arteryes (which they enjoy from the veſſels of the teſticles, from the *Epididymis*, or the coat, from the *Peritonæum* and their proper ſubſtance. Their temper is cold and dry. They be two in number, one to each teſticle. But theſe varicous bodyes are called *Paraſtatæ*, Aſſiſters, becauſe they ſuperficially aſſiſt, and are knit to the teſticles according to their length, or long-wayes. Out of the *paraſtatæ* proceed the *Vaſa ejaculatoria*, or leading veſſels, being of the ſame ſubſtance as their progenitors, that is, ſolid, white and as it were nervous. Their quantity is indifferent, their figure round, and hollow, that the ſeed may have a free paſſage through them, yet they ſeeme not to be perforated by any manifeſt paſſage, unleſſe by chance in ſuch as have had a long *Gonnorrhæa*. They have like temper as the *Paraſtats*, betweene which and the Proſtates they are ſeated, immediatly knit with them both; as both in the coat and the other veſſels with the parts from whence they take them.

Their quantity, figure and compoſure.

Their temper and number.

Vaſa ejaculatoria the ejaculatory or leading veſſels.

But we muſt note, that ſuch like veſſels comming out of the *paraſtats* aſcend from the botom of the ſtones even to the top, in which place meeting with the preparing veſſels, they riſe into the belly by the ſame paſſages, and bind themſelves together by nervous fibers, even to the inner capacity of the belly; from whence turning backe, they forſake the preparing, that ſo they may run to the bottome of the ſhare-bone, into the midſt of two glandulous bodies which they call *proſtats* ſcituate at the neck of the bladder, that there meeting together they may grow into one paſſage.

For thus of three paſſages, that is, of the 2 leading veſſels and 1 paſſage of the bladder, there is one common one in men for the caſting forth of ſeed and urine. A Caruncle riſing like a creſt at the beginning of the neck of the bladder argues this uniting of the paſſages, which receiving this ſame paſſage which is ſufficiently large, is oft times taken by ſuch as are ignorant in anatomy for an unnaturall Caruncle, then eſpecially when it is ſwolne through any occaſion. Theſe leading veſſels are two in number, on each ſide one. Their action is to convey the ſeed made by the teſticles to the Proſtats and ſo to the necke of the bladder, ſo to be caſt forth at the common paſſage. But if any aske whether that common paſſage made by the two leading veſſels betweene the two glandulous bodyes be obvious to ſenſe or no? We anſwer it is not manifeſt, though reaſon compell us to confeſſe that that way is perforated by reaſon of the ſpermaticke, groſſe and viſcous matter carryed that way. But peradventure the reaſon why that paſſage cannot be ſeene is, becauſe in a dead carcaſſe all ſmall paſſages are cloſed and hid, the heat and ſpirits being gone, and the great appeare much leſſe, by reaſon all the perforations fade, and fall into themſelves. Yet certainely theſe paſſage muſt needs be very ſtraite, even in a living man, ſeeing that in a dead they will not admit the point of a needle. Wherefore we need not feare, leaſt in ſearching, whileſt we thruſt the *Catheter* into the bladder, it penetrate into the common paſſage of the leading veſſels which runnes within the Caruncle, unleſſe peradventure by ſome chance, as a *Gonnorrhæa*, or ſome great *Phlegmon*, it be much dilated beſides nature. For I have ſometimes ſeene ſuch paſſages ſo open, that they would receive the head of a Spatherne; which thing ſhould admoniſh us, that in ſearching we take great care, that we doe not raſhly hurt this Caruncle, for being ſomewhat raſhly handled with a *Catheter* it caſts forth blood, eſpecially if it be inflamed. But alſo the concourſe of the ſpirits flowing with great violence together with the ſeed, much helps forward ſuch ejaculation thereof performed through theſe ſtraite paſſages by the power of the imaginative faculty in the Act of generation.

Their number and action.

This Caruncle muſt be obſerved and diſtinguiſhed from a *Hyperſarcoſis* or fleſhy excreſcence.

After the leading veſſels follow the *Proſtatæ*, being glandulous bodyes of the ſame ſubſtance and temper that other Glandules are. Their quantity is large enough, their figure round, and ſomewhat long, ſending forth on each ſide a ſoft production of an indifferent length. They are compoſed of veines, nerves, arteries, a coate (which they have from the neighbouring parts) and laſtly their proper fleſh, which they have from

The *Proſtatæ*. Their quantity and figure.

Number and ſite.

An anatomicall axiome.

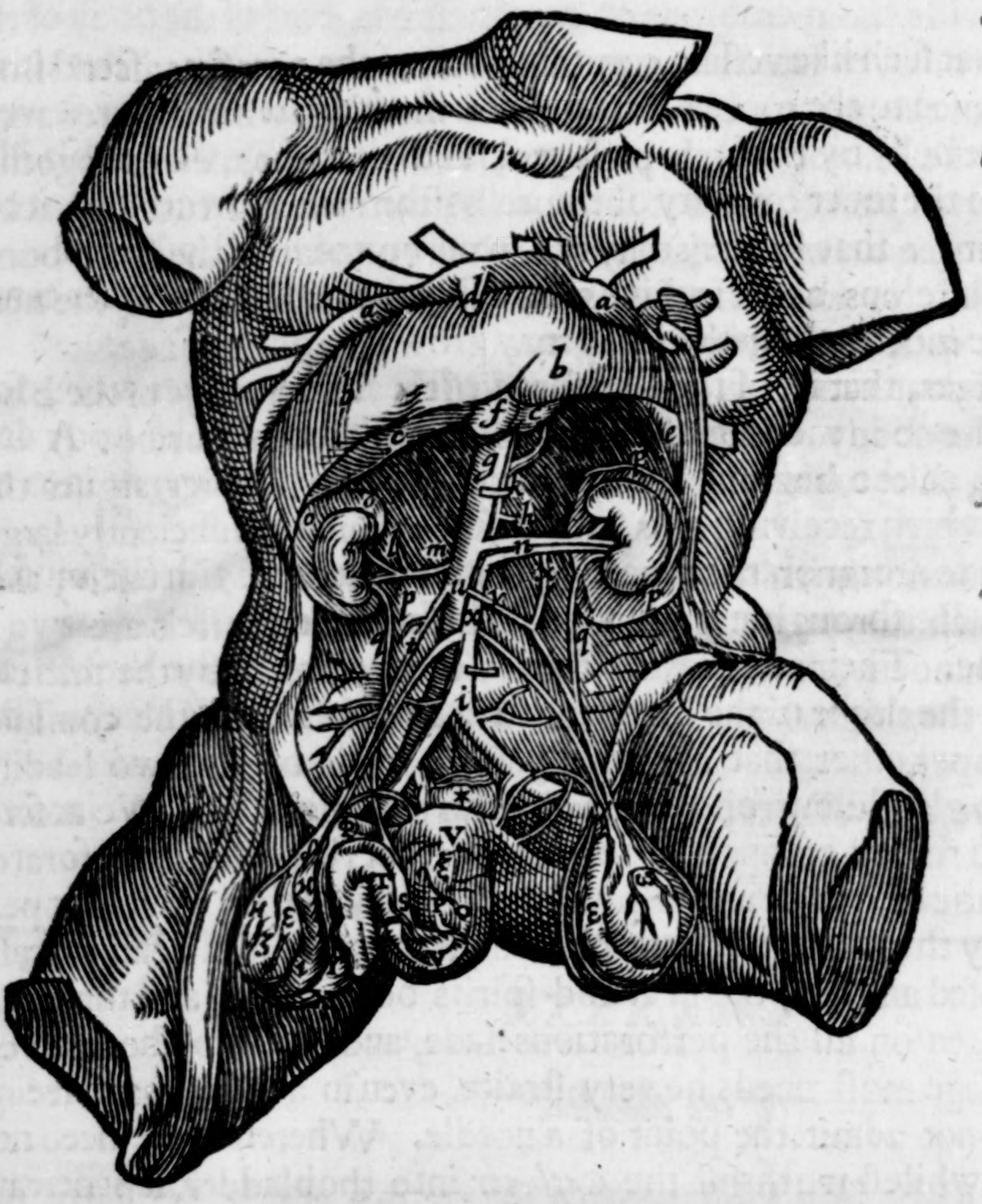
from their firſt conformation. They are two in number, ſcituate at the roote of the necke of the bladder, ſomewhat ſtraitly bound, or tyed to the ſame, to the leading veſſels, and the parts annexed to them. But alwaies obſerve, that every part which enjoyes nouriſhment, life and ſenſe, either firſt or laſt hath connexion with the principall parts of the body, by the intercourſe of the veſſels which they receive from thence.

Their uſe.

Rond. in methed. med. ad morbos.

The uſe of the Proſtats is, to receive in their proper body the ſeed laboured in the teſticles, and to containe it there, untill it be troubleſome either in quantity or quality or both. Beſides they containe a certaine oily and viſcide humor in their glandulous body, that continually diſtilling into the paſſage of the urine, it may preſerve it from the acrimony and ſharpneſſe thereof. But wee have obſerved alſo on each ſide other Glandules, which *Rondeletius* calls *Appendices glanduloſæ*, Glandulous dependances to ariſe from theſe Proſtats, in which alſo their is ſeed reſerved.

The 10. *figure, wherein thoſe things ſhewed in the former figure, are more exactly ſet forth.*



aa A part of the Midriffe and of the *Peritonæum* with the ribs broken.

bb cc The Convex or gibbous part of the Liver marked with *bb.* the hollow or concavous part with *cc.*

d e The right and left ligaments of the Liver.

f The trunke of the gate veine.

g The trunke of the hollow veine.

h l The fatty veines both left and right.

i The aſcent of the great artery above the hollow veine, and the diviſion thereof.

k The *Cæliacall* artery.

m n The emulgent veſſels.

oo pp The fat tunicles or coates torne from both the kidneys.

qq The ureters that goe unto the bladder. *t u.* The right ſpermaticall veine which ariſeth neare to *u.* *x y.* The double originall of the left ſpermaticall veine. *x.* from the emulgent, *y* from the hollow veine. α The originall of the ſpermaticall arteries β Certaine branches from the ſpermaticke arteries which runne unto the *Peritonæum* γ The paſſage of the ſpermaticall veſſels through the productions of the *Peritonæum,* which muſt be obſerved by ſuch as uſe to cut for the Rupture. δ The ſpirie bodden bodies entrance into the teſticle, it is called *Corpus varicoſum pyramidale.* ε The *Paraſtatæ.* ζ The ſtone or teſticle covered with his inmoſt coate. η The deſcent of the leading veſſell called *Vas deferens.* *V y.* The Bladder. * The right gut. ξ The glandules called *proſtata* into which the leading veſſels are inſerted. ρ The muſcle of the bladder. ςτυ Two bodies of the yard, ς and τ and υ his veſſels. φχ. The coat of the Teſticle. ψω The muſcle of the Teſticle ψ. his veſſels ω.

Chap.

Chap. XXX.

Of the Vreters.

Now it ſeemes fit to ſpeak of the *Vreters*, bladder, and parts belonging to the bladder. Therefore the Vreters are of a ſpermaticke, white, denſe and ſolid ſubſtance, of an indifferent bignes in length and thicknes. Their figure is round and hollow. They are compoſed of two coats, one proper conſiſting of right and tranſverſe fibers, which comes from the emulgent veines and arteries; the other common from the *Peritonæum*; beſides they have veines, nerves and arteryes from the Neighbouring parts.

The ſubſtance magnitude, figure and compoſure of the vreters.

They be two in number on each ſide one; They are ſcituate between the Kidneyes (out of whoſe hollow part they proceed) and the bladder. But the manner how the Vreters inſert or enter themſelves into the bladder, and the *Porus Cholagogus* into the *Duodenum*, exceedes admiration; for the ureters are not directly but obliquely implanted neere the orifice of the bladder & penetrate into the inner ſpace thereof; for within they doe as it were divide the membrane or membranous coat of the body of the bladder, and inſinuate themſelves into that, as though it were double. But this is opened at the entrance of the urine, but ſhut at other times, the cover as it were falling upon it, ſo that the humor which is falne into the capacity of the bladder cannot bee forced or driven backe, no not ſo much as the aire blowne into it can come this way out, as we ſee in ſwines bladders blowne vp and filled with aire.

Number and ſite.

For wee ſee it is the Aire contained in theſe which fills them thus, neither canne it bee preſſed forth but with extraordinary force.

For as this skinne or coat turned in by the force of the humor giues way, ſo it being preſſed out by the body conteined within, thruſts its whole body into the paſſage as a ſtopple; like to this is the inſertion of the *Porus Cholagogus* into the Guts.

The ureters have connexion with the above mentioned parts, with the muſcles of the loines; upon which they runne from the Kidneyes to the bladder.

Connexion.

Wherefore nothing hinders, but that the ſtone ſliding through the ureters into the bladder, may ſtupify the thigh as much as it did when it was in the Kidney. They are of a cold and dry temper.

Their uſe is, to ſerve as paſſages, or channels for carrying the urine into the bladder.

Temper and uſe.

Chap. XXXI.

Of the Bladder.

The bladder is of the ſame ſubſtance that the ureters, that is, nervous, that ſo it may bee the more eaſily dilated.

The ſubſtance

It is of a large proportion, in ſome bigger in ſome leſſe, according to the difference of age, and habite of body. It is of a round figure and as it were Pyramidall.

Figure.

It is compoſed of two coats, one proper which is very thicke and ſtrong compoſed of the three ſorts of fibers, that is, in the inner ſide of the direct; without of the tranſverſe; and in the midſt of the oblique.

Compoſition.

The other common Coat comming from the *Peritonæum* hath veines and arteryes on each ſide one, from the *Hypogaſtrick* veſſels above the holy-bone, alſo it hath nerves on each ſide from the ſixt conjugation mixt with the nerves of the holy-bone.

For theſe nerves deſcend from the braine even to the end of the holy-bone.

It is but one and that ſcituate in men in the lower belly upon the right Gut and below the ſhare bone, but in women between the wombe and that bone, to which it cleaves with its membranous ligaments, as it doth to the yard by its neck, and to the right gut by its common coate and proper veſſels. It is of a cold and dry temper.

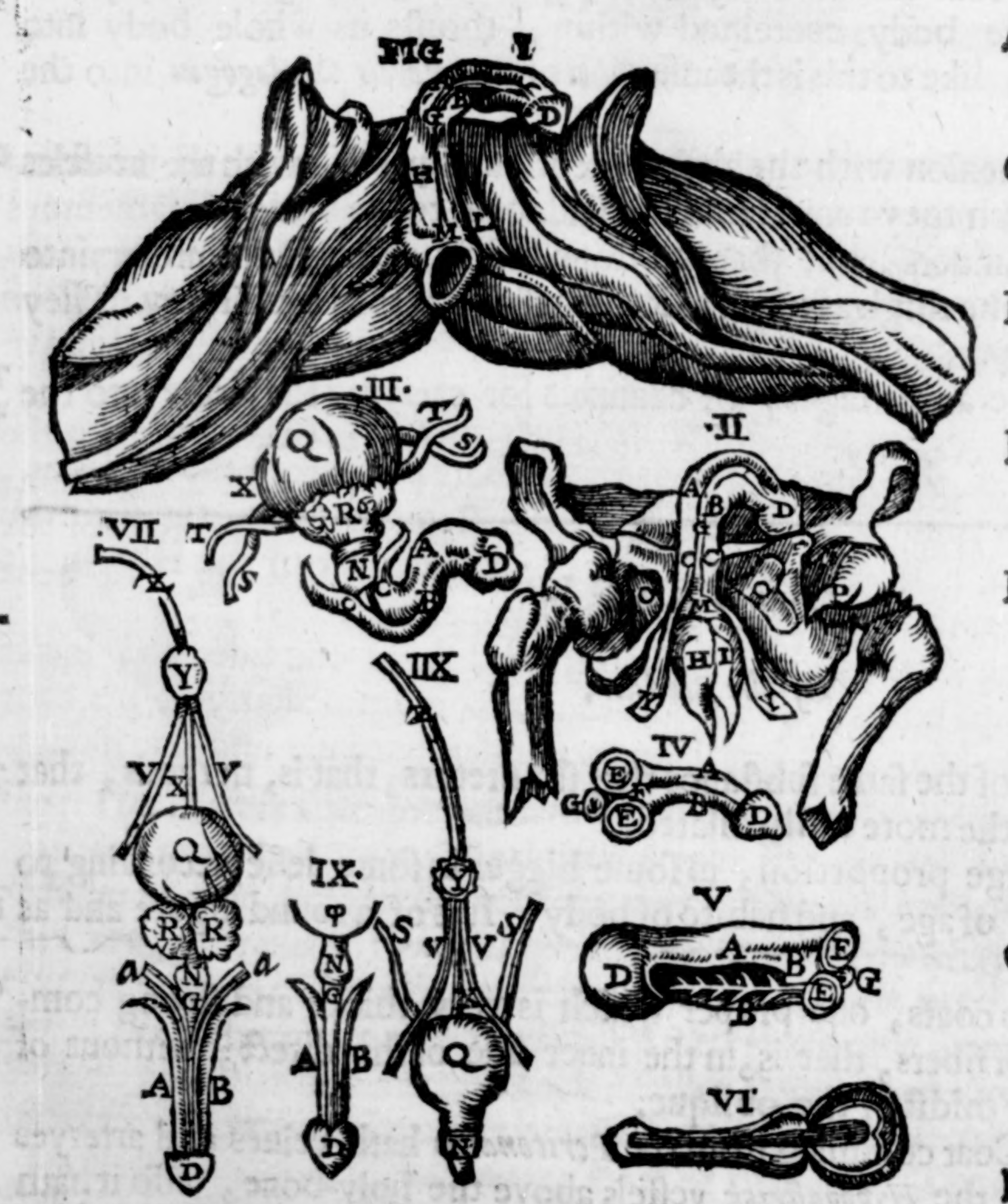
Temper, uſe or action.

The uſe and action thereof is by the fibers continually to draw the urine, and containe it as long as neede requires, and then to expell it by the necke, partly by compreſſion either of it ſelfe, or rather of the muſcles of the *Epigaſtrium* and Midriffe, becauſe this motion, ſeeing it is voluntary cannot be performed unleſſe by a muſcle which the bladder wants; partly alſo by the dilatation and relaxation of the ſphincter muſcle compoſed of tranſverſe fibers, like the ſphincter of the fundament, after the ſame manner to ſhut up the orifice of the bladder, that the urine flow not out againſt our will. But the bladder as it fils is dilated, but as it is emptied, it is contracted like a purſe. You may eaſily obſerve this Muſcle in a Sowes bladder, it is ſtretched from the orifice of the bladder and beginning of the urinarye paſſage even to the privities even in women; but in men it is terminated in the *Perinæum*, as ſoone as it hath left the right Gut.

Their ſphincter of the bladder.

Beſides, this muſcle is thus farre ſtretched forth, that the urine by its compreſſion ſhould be wholy preſſed out of the bladder, which by too long ſtay would by its acrimony doe ſome harme. This is the common opinion of Anatomiſts concerning the Sphincter of the bladder, which never-the-leſſe *Fallopius* allowes not of. For (ſaith hee) if this muſcle ſhould bee ſcituate beneath the glandulous bodyes, the ſeed in copulation could never be caſt forth without ſome ſmall quantity of urine. Wherefore he thinkes that this muſcle is ſcituate above the *Proſtats*, and that it is nothing els but the beginning of the necke of the bladder, which becoms more fleſhy whileſt it is woven with tranſverſe fibers.

The eleventh figure of the bladder and yarde.



AB, 1, 2, 3, 4, 5, 7, 9. The two bodies which make the yard.

CC 2, 3. The place where theſe two bodies do firſt ariſe.

D 1, 2, 4, 5, 7, 9. The nut of the yard called *glans penis*.

EE 4, 5. The fungous and redde ſubſtance of the bodies of the yard.

F 4, 5. The mutuall connexion of the bodyes of the yard, and the nervous outward ſubſtance of the ſame, compaſſing round about the former fungous ſubſtance.

G 1, 2, 3, 4, 5, 7, 9. The paſſage of the urine, or common pipe running under the yarde all along his length.

H.I. 1.2. The firſt paire of Muſcles of the yarde, which in the firſt figure doe yet grow to it, but in the ſecond they hang from their originall. K.L. 1.2. The ſecond paire of Muſcles of the yard, in the firſt figure growing, in the ſecond hanging from their inſertion. M 1.2. The ſphincter of the right gut. N 3, 7, 8, 9. The round ſphincter Muſcle of the bladder. O O, A Membrane which is over the holes of the ſhare bone. P 2. A rounde Ligament from the meeting of the ſhare bones unto the head of the thgh. Q.3.7.8. The body of the bladder. R R,3,7. The *Proſtatæ*, into which ſeede when it is perfectly laboured, is led. SS,3,8. Portions of the ureters. T T * 3, Portions of the veſſels which leade downe the ſeed. V V,7,8, The umbilicall arteries. X7,8, The ligament of the bladder cald *Vrachus*. Y,7,8. The navel or *umbilicus*. Z,7,8. The umbilicall veine. *aa* 7, The veine and artery of the yard. *b* 5. The artery diſtributed through the body of the yard.

The necke of the bladder,

For the necke of the bladder it differs nothing in ſubſtance, compoſure, number, and temper from the bladder, but onely in quantity, which is neither ſo large, nor round in figure, but ſomwhat long together with the yarde repreſenting the ſhape of the letter S. It is placed in men at the end of the right Gut and *Perinæum* riſing, upwards even to the roots of the yarde, and with it bending it ſelf downwards; in weomen it is ſhort, broad, and ſtreight, ending at the orifice of the necke of the wombe betweene the nervous bodyes of the *Nymphæ*.

The connexion and uſe thereof,

In men it hath connexion with the bladder, the ejaculatory veſſels, the right gut and yarde, but in weomen onely with the necke of the wombe and privities. The uſe of it is in men to caſt forth ſeed and urine, in weomen onely urine. But wee muſt note that the ſhare bones muſt be divided and pulled aſunder, in that part where they are joyned, that ſo you may the more exactly obſerve the ſcituation of theſe parts. Beſides you muſt note that by the *Perinæum* we underſtand nothing elſe, in men and weomen, than that ſpace which is from the fundament to the privities in which the ſeame is called *Taurus*.

CHAP. XXXII.

Of the yarde.

The ſubſtance quantity and figure of the yarde,

Now followes the declaration of the Privy parts of men and weomen, and firſt wee will treat of mens. The yard is of a ligamentous ſubſtance becauſe it hath its originall from bones, it is of an indifferent magnitude in all dimenſions, yet in ſome bigger, in ſome leſſe; the figure of it is round, but yet ſome what flatted above and beneath.

Compoſure;

It is compoſed of a double coat, Nerves, veines, arteryes, two ligaments, the paſſage of the urine, and foure muſcles. It hath its coats both from the true skin; as alſo from the fleſhy pannicle, but the veines and Arteryes from theſe of the lower part of the lower belly which runne on the lower part of the Holy-bone into the yard, as the ſeminary veſſels runne on the upper part.

The ligaments

The ligaments of the yard proceed on both ſides from the ſides and lower commiſſure of the ſhare-bones; wherefore the yard is immediatly at his root furniſhed with a double ligament, but theſe two preſently runne into one ſpungy one. The paſſage of the urine ſcituate in the lower part of the yarde comes from the neck of the bladder betweene the two ligaments.

The muſcles;

For the foure muſcles, the two ſide ones compoſeing or making a great part of the yard, proceed from the inward extuberancy of the Hip-bone, and preſently they are dilated from their originall, and then grow leſſe againe. The two other lower ariſe from the muſcles of the fundament and accompany the urinary paſſage the length of the *perinæum* untill they enter the yard; but theſe two muſcles cleave ſo cloſe together, that they may ſeeme one haveing a triangular forme.

Their Action;

The action of theſe foure muſcles in the act of generation is they open and dilate this common paſſage of urine and ſeed, that the ſeede may be forcibley or violently caſt into the feild of nature; and beſides they then keepe the yarde ſo ſtiffe, that it cannot bend to either ſide.

The yard is in number one, and ſcituate upon the lower parts of the ſhare bone that it might bee more ſtiffe in erection. It hath connexion with the ſhare-bone and neighbouring parts; by the particles of which it is compoſed. It is of a cold and dry temper. The action of it is to caſt the ſeed into the wombe, for preſervation of mankinde.

The Nut. The *Præputium*, or foreskin.

The head of it begins where the tendons end, this head from the figure thereof is called *Glans* and *Balanus*, that is the Nut, and the skin which covers that head is called *Præputium* that is, the foreskin. The fleſh of this *Glandule* is of a middle nature between the Glandulous fleſh and true skin. But you muſt note that the Ligaments of the yarde are ſpongy contrary to the condition of others, and filled with groſſe and blacke blood. But all theſe ſtirred up by the delight of deſired pleaſure and provoked with a venereall fire, ſwell up and erect the yard.

Chap. XXXIII.

Of the ſpermaticke veſſels and teſticles in weomen.

In what the ſperematicke veſſels in weomen differ from thoſe in men.

Now we ſhould treat of the Privy parts in weomen but becauſe they depend upon the necke and proper body of the wombe, we will firſt ſpeake of the wombe, hauing firſt declared what difference there is betweene the ſpermaticke veſſels and teſticles of men and weomen. Wherefore we muſt know that the ſpermatick veſſels in weomen do nothing differ from thoſe in men in ſubſtance, figure, compoſure, number, connexion, temper, originall and uſe, but only in magnitude and diſtribution; for weomen have them more large and ſhort.

Why they are larger but ſhorter then mens.

It was fit they ſhould be more large, becauſe they ſhould not onely convey the matter fit for generation of young and nouriſhment of the teſticles, but alſo ſufficient for the nouriſhment of the wombe and child; but ſhorter becauſe they end at the teſticles and wombe within the belly in weomen. Where you muſt note that the preparing ſpermaticke veſſels, a litle before they come to the Teſticles, are divided into two unequall branches, of which the leſſer bended, after the ſame manner as wee ſaid in men, goes into the head of the teſticle, through which it ſends a ſlender branch into the coats of the teſticles for life and nouriſhment, and not onely into the coats but alſo into the leading veſſels. But the bigger branch deſcends on each ſide by the upper part of the wombe betweene the proper coate and the common, from the *Peritonæum* where it is devided into divers branches. By this difference of the ſpermaticke veſſels you may eaſily underſtand why weomen caſt forth leſſe ſeed than men.

In what their teſticles differ from mens.

For their Teſticles, they differ litle from mens but in quantity; For they are leſſer and in figure more hollow and flat, by reaſon of their defective heat which could not elevate or lift them vp to their juſt magnitude. Their compoſure is more ſimple, for they want the *ſcrotum* or cod, the fleſhy coate, and alſo according to the opinion of ſome the *Erythroides*, but in place thereof they have another from the *Peritonæum* which covers the proper coat, that is the *Epididymis*, or *Dartos*. *Silvius* writes that womens Teſticles wants the *Erythroides*; yet it is certaine that beſides their peculiar coat *Dartos*, they have another from the *peritonæum*, which is the *Erythroides*, or as *Fallopius* calls it the *Elythroides*, that is as much as the *vaginalis* or ſheath. But I thinke that this error hath ſprung from the miſunderſtanding that place in *Galen* where he writes, that womens teſticles want the *Epididymis*. For we muſt not underſtand that to be ſpoken of the coate, but of the varicous paraſtats (as I formerly ſaid). They differ nothing in number, but in ſite; for in men they hang without the belly at the ſhare bone above the *Peritonæum*; weomen have them lying hide in their belly, nere the bottome at the ſides of the wombe, but yet ſo as they touch not the body of the wombe.

Lib. 14. de uſu part.

Site.

Connexion.

But theſe teſticles are tyed to the wombe both by a coate from the *Peritonæum*, as alſo by the leading veſſels deſcending to the hornes of the wombe, but to the reſt of the body by the veſſels and the nerves ariſing from the holy bone and

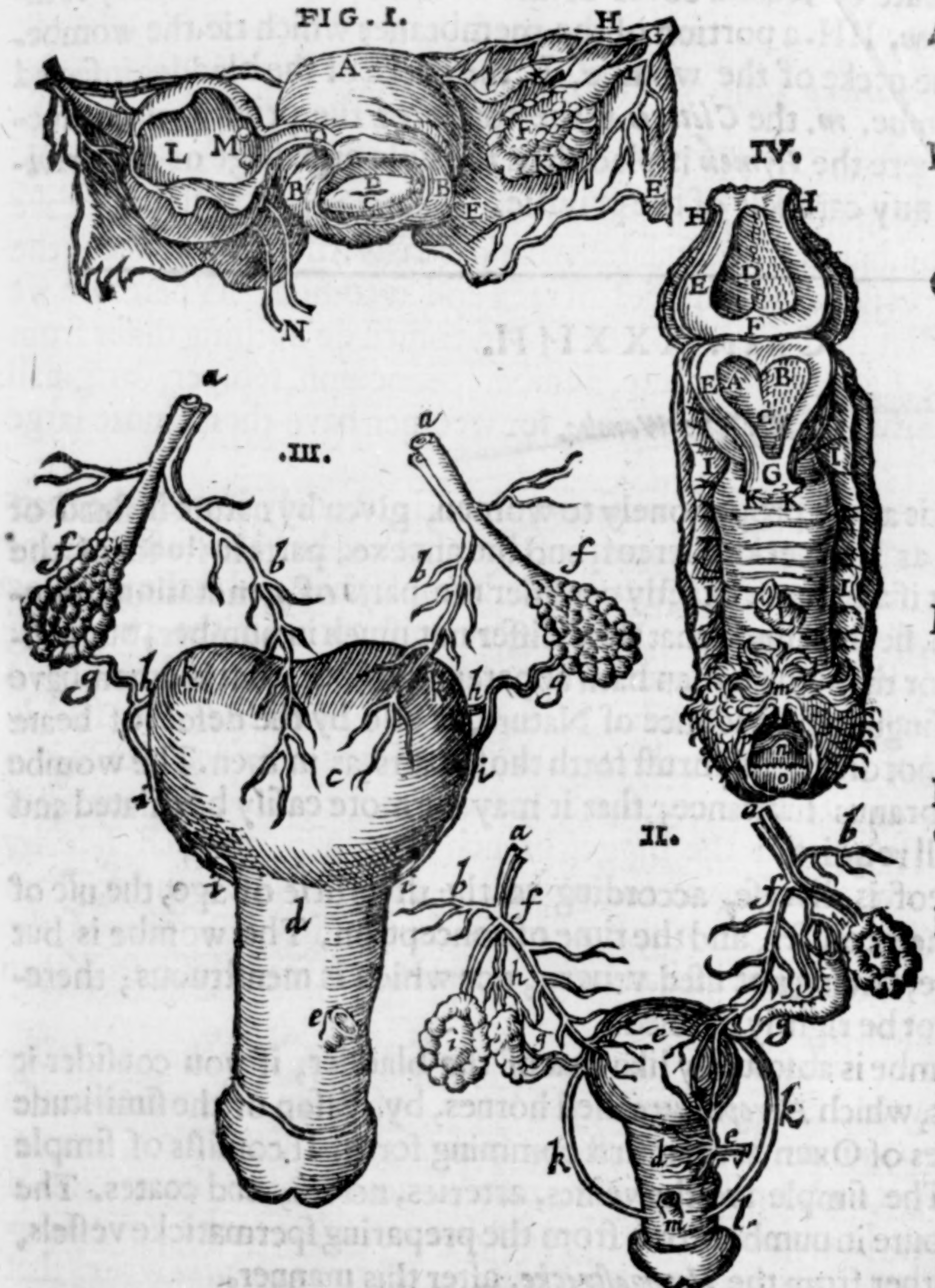
Coſtall

Temper. Their ejaculatory veſſels.

coſtall nerves. They are of a colder Temper than mans. The ejaculatorie, or leading veſſels in women differ thus from mens, they are large at the beginning, and of a veinie conſiſtance, or ſubſtance, ſo that you can ſcarſe diſcerne them from the coate *Peritonæum*, then preſently they become nervous, and waxe ſo ſlender, that they may ſeeme broken or torne, though it be not ſo; but when they come nearer to the hornes of the wombe, they are againe dilated; in their other conditions, they agree with mens, but that they are altogether more ſlender and ſhort. They have a round figure, but more intricate windings than mens; I beleeve, that theſe windings might ſupply the defect of the varicous Paraſtats. They are ſeated betweene the teſticles and wombe, for they proceede out of the head of the teſticle, than preſently armed with a coate from the *Peritonæum*, they are implanted into the wombe by its hornes.

Why they have more intricate windings. Their ſite.

The twelfth Figure, of the Wombe.



A. The bottome of the wombe laid open without any membrane.

BB. The necke of the wombe turned upward.

CD. a part of the bottome of the wombe like the nut of the yard, ſwelling into the upper part of the necke of the wombe, in the middle whereof the orifice appeareth.

EE. a membrane knitting the wombe to the *Peritonæum*, and holding togethe the veſſels thereof.

F. the left teſticle.

G. the ſpermaticall veine and artery.

H. a part of the ſpermaticall veſſells reaching unto the bottome of the wombe.

I. one part of the veſſels comming to the teſticles

• a veſſell leading the ſeede unto the wombe.

K. the coate of the teſticle with the implication of the veſſels. L. the cavitie of the bladder opened. M. the inſertion of the Vreters into the bladder. N. the Vreters cut from the kidneies. O. the inſertion of the necke of the bladder into the lap or privitie.

The ſecond Figure.

aa. The ſpermaticall veine and artery. *bb.* branches diſtributed to the *Peritonæum* from the ſpermaticall veſſels. *c.* the bottome of the wombe. *d.* the necke of the wombe. *e.* certaine veſſels running through the inſide of the wombe, and the necke thereof. *ff,* veſſels reaching to the bottome of the wombe produced from the ſpermaticall veſſell. *gg.* the leading veſſell of ſeede called *Tuba* the Trumpet. *hh.* a branch of the ſpermaticall veſſell compaſſing the trumpet. *ii.* the teſticles. *kk.* the lower ligaments of the wombe, which ſome call the Cremaſteres or hanging muſcles of the wombe. *l.* the lap or privitie into which the Cremaſteres doe end. *m.* a portion of the necke of the bladder.

The third Fignre.

aa. the ſpermaticall veſſels. ***bb.*** a branch from theſe ſpermaticall veſſels to the bottome of the wombe. ***cc.*** the body or bottome of the wombe. ***d.*** the necke of the ſame, ***e.*** the necke of the bladder ending into the necke of the wombe. ***ff.*** the teſticles. ***gg.*** the leading veſſels, commonly though not ſo well called the ejaculatory veſſels. ***hh.*** theſe diviſion of the veſſels, one of them determining into the hornes at double ***kk.*** ***ii.*** the other branch ending in the necke, by which women with child avoid their ſeede. ***kk.*** the hornes of the wombe.

The fourth Figure.

AB. The boſome of the bottome of the wombe, at whoſe ſides are the hornes. CD. a line like a ſuture or ſeame, a little diſtinguiſhing that boſome. EE. the ſubſtance of the bottome of the wombe, or the thickneſſe of his inner coate. F. a protuberation or ſwelling of the wombe in the middle of the boſome. G. the orifice of the bottome of the wombe. HH. the coate or ſecond cover of the bottome of the wombe, comming from the *Peritonæum.* IIII. a portion of the membranes which tie the wombe. KK. the beginning of the necke of the wombe. L. the necke of the bladder inſerted into the necke of the wombe. ***m.*** the *Clitoris* in the toppe of the privity. ***n.*** the inequalitie of the privitie where the *Hymen* is placed. ***o.*** the hole or paſſage of the privitie in the cleft. ***p.*** the skinny caruncle of the privitie.

Chap. XXXIIII.

Of the Wombe.

Wherein the privy parts in weomen differ from thoſe in men.

The Wombe is a part proper onely to women, given by nature in ſtead of the *Scrotum*, as the necke thereof, and the annexed parts in ſtead of the yard; ſo that if any more exactly conſider the parts of generation in women and men, he ſhall finde that they differ not mueh in number, but onely in ſituation and uſe. For that which man hath apparent without, that women have hid within, both by the ſingular providence of Nature, as alſo by the defect of heate in women, which could not drive and thruſt forth thoſe parts as in men. The wombe is of a nervous and membranus ſubſtance, that it may be more eaſily be dilated and contracted, as neede ſhall require.

The ſubſtance and magnitude of the wombe.

The magnitude thereof is diverſe, according to the diverſitie of age, the uſe of venery, the flowing of their courſes, and the time of conception. The wombe is but ſmall in one of unripe age, having not uſed venery, nor which is menſtruous; therefore the quantititie cannot be rightly defined.

Figure.

The hornes of the wombe.

Compoſure.

The veines and Arteryes.

The figure of the wombe is abſolutely like that of the bladder, if you conſider it without the productions, which *Herophilus* called hornes, by reaſon of the ſimilitude they have with the hornes of Oxen at their firſt comming forth. It conſiſts of ſimple and compound parts. The ſimple are the veines, arteries, nerves, and coates. The veines and arteries are foure in number, two from the preparing ſpermaticke veſſels, the two other aſcend thither from the *Hypogaſtricke*, after this manner.

Firſt, theſe veſſels before they aſcend on each ſide to the wombe, divide themſelves into two branches, from which otherſome goe to the lower part of the wombe, otherſome to the necke thereof, by which the menſtruous bloud, if it abound from the conception, may be purged.

Nerves.

Nerves come on both ſides to the wombe, both from the ſixt conjugation, deſcending by the length of the backe bone, as alſo from the holy bone, which preſently united and joyned together, aſcend and are diſtributed through the wombe, like the veines and arteries.

The Coats.

The utmoſt or common coate of the wombe, proceeds from the *Peritonæum*, on that part it touches the holy bone; but the proper it hath from the firſt conformation, which is compoſed of the three ſorts of fibers, of the right on the inſide for the attraction of both ſeedes; the tranſverſe without to expell, if occaſion be; the oblique in the midſt for the due retention thereof.

No cels in the wombe.

The wombe admits no diviſion, unleſſe into the right and left ſide, by an obſcure line or ſeame, ſuch as we ſee in the *Scrotum*, but ſcarſe ſo manifeſt; neither muſt we after the maner of the ancients, or imagine any other cels in the womb. For by the law of nature, a woman at one birth can have no more than two. An argument hereof is, they have no more than two dugges. If any chance to bring forth more, it is beſides nature, and ſomewhat monſtrous, becauſe nature hath made no proviſion of nouriſhment for them.

The ſite.

Nature hath placed the wombe at the bottome of the belly, becauſe that place ſeemes moſt fit to receive ſeede, to carrie and bring forth the young. It is placed betweene the bladder and right gut, and is bound to theſe parts much more ſtraitly, by the necke, than by the body thereof; but alſo beſides it is tied with two moſt ſtrong ligaments on the ſides, and upper parts of the ſharebone, on which it ſeemes to hang; but by its common coate from the *Peritonæum*, chiefly thicke in that place, it is tied to the hollow bone, and the bones of the hanch and loines.

The temper and action.

By reaſon of this ſtrait connexion, a woman with child feeling the painefull drawings backe, and as it were conuvlſions of thoſe ligaments, knowes her ſelfe with child. It is of a cold and moiſt temper, rather by accident, than of it ſelfe. The action thereof is to containe both the ſeedes, and to chearish, preſerve, and nouriſh it, ſo contained, untill the time appointed by nature; and alſo beſides, to receive, and euacuate the menſtruous bloud. The compound parts of the wombe are, the proper body and necke thereof. That body is extended in women bigge with child, even to the navell, in ſome higher, in ſome lower.

The *Cotyledones.*

In the inner ſide the *Cotyledones* come into our conſideration, which are nothing elſe than the orifices and mouthes of the veines, ending in that place. They ſcarſe appeare in women, unleſſe preſently after child-bearing, or their menſtrual purgation; but they are apparent in ſheepe, Goates, and Kine, at all times like wheat cornes, unleſſe when they are with young, for then they are of the bigneſſe of haſell nuts: but then alſo they ſwell up in women, and are like a rude piece of fleſh of a finger and a halfe thicke; which begirt all the naturall parts of the infant ſhut up in the wombe; out of which reſpect this ſhapeleſſe fleſh, according to the opinion of ſome is reckoned amongſt the number of coates inveſting the infant, and called *Chorion*, becauſe, as in beaſts, the *Chorion* is interwoven with veines, and arteries, whence the umbilicall veſſels proceede; ſo in women this fleſhie lumpe is woven with veines, and arteries, whence ſuch veſſels have their originall. Which thing, how true and agreeable to reaſon it is, let other men judge.

Columbus juſtly reproved.

There is one thing whereof I would admoniſh thee, that as the growth of the *Cotelidones* in beaſts, are not called by the name of *Chorion*, but are onely ſaid to be the dependants thereof, ſo in women ſuch ſwollen *Cotelidones* merit not the name of *Chorion*, but rather of the dependances thereof,

The orifice of the wombe. The proper orifice of the wombe is not alwayes exactly ſhut in women with child.

This body ends in a certaine ſtraitneſſe which is met withall, in following it towards the privities, in women who have borne no children, or have remained barren ſome certaine time; for in ſuch as are lately delivered, you can ſee nothing but a cavitie and no ſtraitnſſe at all. This ſtraitneſſe wee call the proper orifice of the wombe, which is moſt exactly ſhut after the conception, eſpecially untill the membrane, or coats incompaſſing the child be finiſhed, and ſtrong enough to containe the ſeede, that it flow not forth, nor be corrupted by entrance of the aire; for it is opened to ſend forth the ſeede, and in ſome the courſes and ſerous humors, which are heaped up in the wombe in the time of their being with child.

The necke of the wombe.

From this orifice the necke of the wombe taking its originall, is extended even to the privities. It is of a muſculous ſubſtance, compoſed of ſoft fleſh, becauſe it might be extended and contracted, wrinkled, and ſtretched forth, and unfolded, and wreſted, and ſhaken at the comming forth of the child, and after be reſtored to its former ſoundneſſe and integritie. In proceſſe of age it growes harder, both by uſe of venery, and alſo by reaſon of age, by which the whole body in all parts thereof becomes drie and hard. But in growing, and young women, it is more tractable and flexible for the neceſſitie of nature.

Its magnitude.
Compoſition,

The magnitude is ſufficiently large in all dimenſions, though divers, by reaſon of the infinite varietie of bodies. The figure is long, round, and hollow. The compoſition is the ſame with the wombe, but it receives not ſo many veſſels as the wombe; for it hath none but thoſe which are ſent from the *Hypogaſtricke* veines, by the branches aſcending to the wombe. This necke on the inſide is wrinckled with many creſts, like the upper part of a dogges mouth, ſo in copulation to cauſe greater pleaſure by that inequalitie, and alſo to ſhorten the act.

Number and ſite.

It is onely one, and that ſituate betweene the necke of the bladder and the right gut, to which it cloſely ſticketh, as to the wombe by the proper orifice thereof, and to the privities by its owne orifice; but by the veſſels to all the parts from whence they are ſent.

Temper.
No *Hymen*.

It is of a cold and drie temper, and the way to admit the ſeede into the wombe, to exclude the infant out of the wombe, as alſo the menſtruall evacuation. But it is worth obſervation, that in all this paſſage there is no ſuch membrane found, as that they called *Hymen*, which they feigned to be broken at the firſt coition. Yet notwithſtanding *Columbus*, *Fallopius*, *Wierus*, and many other learned men of our time think otherwiſe, and ſay, that in Virgins a litle above the paſſage of the urine, may be found and ſeene ſuch a nervous membrane, placed overtwhart as it were in the middle way of this necke, and perforated for the paſſage of the courſes. But you may finde this falſe by experience; it is likely the Ancients fell into this error through this occaſion, becauſe that in ſome a good quantitie of bloud breakes forth of theſe places at the firſt copulation.

From whence the blood proceeds that breaks forth in ſome virgins in the firſt coition.

But it is more probable, that this happens by the violent attrition of certaine veſſels lying in the inward ſuperficies of the necke of the wombe, not being able to endure without breaking ſo great extention as that nervous necke undergoes at the firſt coition. For a maide which is marriageable, and hath her genitall parts proportionable in quantitie and bigneſſe to a mans, ſhall finde no ſuch effuſion of bloud, as we ſhall ſhew more at large in our Booke of Generation.

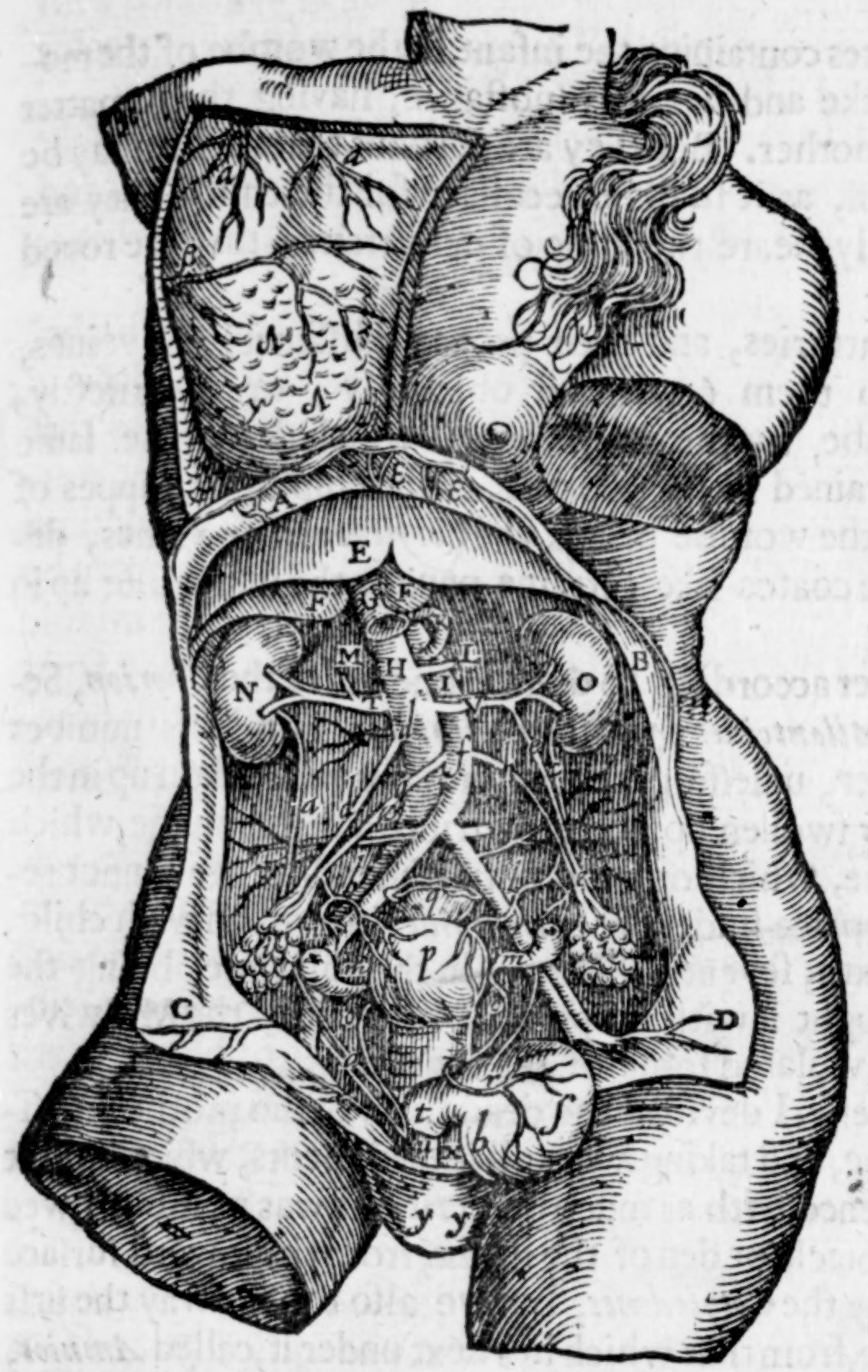
This necke ends at the privities, where its proper orifice is, which privy parts we muſt treate of, as being the productions and *appendices* of this necke. This *Pudendum*, or privitie, is of a middle ſubſtance, betweene the fleſh and a nerve; the magnitude is ſufficiently large, the figure round, hollow, long. It is compoſed of veines, arteries, nerves, deſcending to the necke of the wombe, and a double coate proceeding from the true skinne and fleſhie pannicle; both theſe coates are there firmely united by the fleſh comming betweene them; whereupon it is ſaid, that this part conſiſts of a muſculous coate. It is one in number, ſituate above the *Perinæum*. It hath connexion with the fundament, the necke of the wombe and bladder, by both their peculiar orifices.

Alæ.
πτερυγώματι.

It hath a middle temper, betweene hot, and cold, moiſt and drie. It hath the ſame uſe as a mans *Præputium* or fore-skinne, that is, that together with the *Numphæ* it may hinder the entrance of the aire, by which the wombe may be in danger to take cold. The lips of the privities called by the Greekes πτερυγώματι, by the Latines *Alæ*, containe all that region which is inveſted with haires; and becauſe we have falne into mention of theſe *Nymphæ*, you muſt know that they are as it were productions of the muſculous skinne, which deſcend on both ſides, from the upper part of the ſhare-bone downewards, even to the orifice of the necke of the bladder, oft times growing to ſo great a bigneſſe, that they will ſtand out like a mans yard. Wherefore in ſome they muſt be cut off in their young yeares, yet with a great deale of caution, leſt if they be cut too raſhly, ſo great an effuſion of bloud may follow, that it may cauſe, either death to the woman, or barrenneſſe of the wombe by reaſon of the refrigeration by the too great effuſion of bloud. The latter Anatomiſts, as *Columbus* and *Fallopius* beſides theſe parts, have made mention of another particle, which ſtands forth in the upper part of the privities, and alſo of the urinary paſſage, which joynes together thoſe wings wee formerly mentioned. *Columbus* cals it *Tentigo*, *Fallopius Cleitoris*, whence proceeds that infamous word *Cleitorizein*, (which ſignifies impudently to handle that part.) But becauſe it is an obſcene part, let thoſe which deſire to know more of it, reade the Authors which I cited.

Cleitoris, tentigo

The thirteenth Figure, ſhewing the parts of women different from theſe in men.



A.B.C.D. The *Peritonæum* reflected or turned backward, above and below.

E.F. the gibbous part of the liver E, the cave or hollow part F.

G. The trunke of the gate veine.

H. the hollow veine.

I. the great artery.

K. the rootes of the *Cœlicall* artery which accompanieth the gate veine.

L.M. the fatty veine going to the coate of the kidneies.

N.O. the fore-part of both the kidneies.

T.V. the emulgent veines and arteries.

aa. the right ureter at the loweſt *a*, cut from a part which neere to *b*, ſticketh yet to the bladder, becauſe the bottome of the bladder is drawne to the left-ſide.

c. the left ureter inſerted into the bladder neere to *r*.

dd. the ſpermaticke veine which goeth to the left teſticle marked with *i*.

ee. the ſpermaticke veine which goeth to the left teſticle with *i*, alſo. *f.* the trunke of the great arterie from whence the ſpermaticall arteries doe proceed. *g.h.* the ſpermaticall arteries. *ii.* the two teſticles. *ll*, a branch which from the ſpermaticke veſſels reacheth unto the bottome of the wombe. *mm.* the leading veſſell of the ſeede which *Falopius* calleth the *tuba* or trumpet, becauſe it is crooked and reflected. *n.* a branch of the ſpermaticke veſſel, compaſſing the leading veſſell. *oo.* a veſſell like a worme which paſſeth to the wombe, ſome call it *Cremaſter*. *p.* the bottome of the wombe called *fundus uteri*. *q.* a part of the right gut. *r.ſ.* the bottome of the bladder whereto is inſerted the left ureter, and a veine led from the necke of the wombe neere unto *r*. *t.* the necke of the bladder. *u.* the ſame inſerted into the privitie or lap. *x.* a part of the necke of the wombe above the privity. *yy.* certaine ſkinnie Caruncles of the privities, in the midſt of which is the ſlit, and on both ſides appeare little hillocks.

The Figures belonging to the Dugges and Breaſts.

αα, The veines of the Dugs which come from thoſe, which deſcending from the top of the ſhoulder, are offered to the ſkinne. *β.* the veines of the dugges derived from thoſe which through the arme-hole are led into the hand *γ.* the body of the Dugge or Breaſt. *δδ.* the kernels and fat betweene them. *εε.* the veſſels of the Dugges deſcending from the lower part of the necke called *iugulum*, under the breaſt bone.

CHAP.

CHAP. XXXV.

Of the Coats containing the Infant in the wombe, and of the Navell.

Their ſubſtance, magnitude, figure, and compoſure.

THe membranes or coates containing the infant in the wombe of the mother, are of a ſpermaticke and nervous ſubſtance, having their matter from the ſeede of the mother. But they are nervous that ſo they may be the more eaſily extended, as it ſhall be neceſſary for the child. They are of good length and bredth, eſpecially neare the time of deliverance, they are round in figure like the wombe.

Their compoſition is of veines, arteries, and their proper ſubſtance. The veines, and arteries, are diſtributed to them (whether obſcurely, or manifeſtly, more or fewer) from the wombe by the *Cotyledones*, which have the ſame office, as long as the child is contained in the wombe, as the nipples or pappes of the nurſes after it is borne. For thus the wombe brings the *Cotyledones*, or veines, degenerating into them, through the coates like certaine paps to the infant ſhut up in them.

Their number.

Theſe coates are three in number according to *Galen*; one called the *Chorion*, Secundine, or afterbirth; the other *Allantoides*; the third *Amnios*. I find this number of coates in beaſts, but not in women, unleſſe peradventure any will reckon up in the number of the coats, the *Cotyledones* ſwollen up, and grown into a fleſhie maſſe, which many skilfull in Anatomy doe write, which opinion notwithſtanding we cannot receive as true. I could never in any place finde the *Allantoides* in women with child, neither in the infant borne in the ſixth, ſeventh, eight, or in the full time, being the ninth moneth, although I have ſought it with all poſſible diligence, the Midwives being ſet apart, which might have violated ſome of the coates.

But thus I went about this buſineſſe, I devided the dead body of the mother croſſwiſe upon the region of the wombe, and taking away all impediments, which might either hinder, or obſcure our diligence, with as much dexteritie as was poſſible, wee did not onely draw away that receptacle or den of the infant, from the inward ſurface of the wombe, to which it ſtucke by the *Cotyledones*, but we alſo tooke away the firſt membrane which we called *Chorion*, from that which lies next under it, called *Amnios*, without any rending or tearing; for thus we powred forth no moiſture, whereby it might be ſaid, that any coate, made for the containing of that humor, was rent, or torne. And then we diligently looked, having many witneſſes and ſpectators preſent, if in any place there did appeare any diſtinction of theſe two membranes, the *Allantoides*, and *Amnios*, for the ſeparating the contained humors, and for other uſes which they mention.

But when we could perceive no ſuch thing, we tooke the *Amnios* filled with moiſture on the upper ſide, and having opened it, two ſervants ſo holding the apertion, that no moiſture might flow out of it into the circumference of the *Chorion* or womb; then preſently with ſpunges we drew out by little and little all the humiditie contained in it, the infant yet contained in it, which was fit to come forth, that ſo the coate *Amnios* being freed of this moiſture, we might ſee whether there were any other humor contained in any other coate beſides. But having done this with ſingular diligence and fidelity, we could ſee no other humor, nor no other ſeparation of the membranes beſides.

He ſhewes by three ſeverall reaſons that there is no *Allantoides*.

So that, from that time I have confidently held this opinion, that the infant in the wombe, is onely wrapped in two coates, the *Chorion* and *Amnios*. But yet not ſatisfied by this experience, that I might yet be more certaine concerning this *Allantoides*, having paſſed through the two former coates, I came to the infant, and I put a quill into its bladder, and blew it up as forceably as I could, ſo to trie, if by that blowing I might force the aire into that coate which we queſtioned, as ſome have written. But neither thus could I drive any aire from hence, through the navell into the controverted coate, but rather I found it to flie out of the bladder by the privities. Wherefore I am certainely perſwaded that there is no *Allantoides*. Moreover I could never finde nor ſee in the navell that paſſage called the *urachus*, which they affirme to be the beginning and originall of the coate *Allantoides*. But if it be granted that there is no ſuch coate as the *Allantoides*, what diſcommoditie will ariſe hereof? ſpecially ſeeing the ſweate and urine of the infant may eaſily and without any diſcommoditie be received, collected and contained in the ſame coate, by reaſon of the ſmall difference which is betweene them. But if any object that the urine by its ſharpeneſſe and touching will hurt the infant; I will anſwer, there can be no ſo great ſharpeneſſe in the urine of ſo ſmall an infant, and that, if that there be any, it is tempered by the admixture of the gentle vapour of ſweat.

Beſides, if you conſider, or have regard to the uſe of ſuch an humor (which is to hold up the child, leſt by its weight it breakes the ties, by which it is bound to the wombe;) wee ſhall finde no humour more fit for this purpoſe than this ſerous, as which by its thickneſſe is much more fit to beare up a weight, than the thinne and to liquide ſweate. For ſo we ſee the ſea or ſalt water carries greater weights without danger of drowning, than freſh rivers doe. Wherefore I conclude that there is no neede, that the urine ſhould be kept and contained in one coate, and the ſweate in another. The Ancients who have writ otherwiſe, have written from obſervations made in beaſts. Wherefore we make but onely two coats the *Chorion* and *Amnios*, the one of which ſeeing it containes the other, they both ſo encompaſſe the child, that they veſt it on every ſide.

Fallopius in ſome ſort ſeemes to be of this opinion; for he onely makes two coates; the *Chorion* and *Amnios*, but hee thinkes the infant makes the water into a certaine part of the *Chorion*, as you may perceive by reading of his Obſervations. Both theſe coates are tied betweene themſelves by the intercourſe of moſt ſlender nervous fibers, and ſmall veſſels penetrating from the outer *Chorion* to the inner *Amnios*. Wherefore unleſſe you warily handle theſe coates you may eaſily teare the *Amnios* in ſeparating it. They are of the ſame temper with other membranes. Their uſe is differens, for the *Chorion* is made both for the preſervation of the veſſels, which it receives from the wombe for the generating of the umbilicall veines and arteries, as alſo, to keepe whole and ſafe the parts which it inveſts.

Their temper and uſe.

But the *Amnios* is to receive and containe the excrementitious and ſerous humors, which the child ſhut up in the wombe is accuſtomed to evacuate. But this coate is very thinne and ſoft, but ſtrong and ſmooth, leſt by its touch it might hurt the infant, whereupon it is called the Lamb-kinne coate.

Chap. XXXVI.

Of the Navell.

THe Navell followes theſe coates; It is a white body ſomewhat reſembling the wreathen cord, or girdle of the *Franciſcan Friers*, but that it hath not the knots ſtanding ſo farre out, but onely ſwelling in certaine places, reſembling a knot, onely lifted up on one ſide; it ariſes and takes its originall from a fleſhie maſſe which we expreſſed by the name of ſwelling *Cotyledones*, and goes into the midſt of the lower belly of the infant, yea verily into the midſt of the whole body, whoſe roote it is therefore ſaid to be. For even as a tree by the roote, ſucks nouriſhment from the earth, ſo the infant in the wombe drawes its nouriſhment by the navell. The greatneſſe of it in breadth and thickneſſe, equall the bigneſſe of the little finger. But it is a foote and a halfe long, ſo that children are brought forth with it, encompaſſing their middle, necke, armes, or legges. The figure of it is round. It is compoſed of two arteries, one veine and two coates. It hath theſe veſſels from that great multitude of capillary veines and arteries, which are ſeene diſperſed over the *Chorion*. Wherefore the veine entring in at the navell, penetrates from thence into the hollow part of the liver, where divided into two, according to *Galens* opinion, it makes the gate and hollow veines. But the arteries, caried by themſelves the length of the navell, caſt themſelves into the *Iliaca*, which they

What the navell is.

Their Navell is the Center of the body.

The figure and compoſure.

Lib. de format. fœtus in utero.

they make, as alſo all other, that from thence the vitall ſpirit may be carried by them over all the infant. It hath its two coates from the *Chorion*.

But ſeeing they are mutually woven and conjoyned without any *medium*, and are of a ſufficient ſtrength and thickneſſe over all the navell, they may ſeeme to make the infants externall skinne and fleſhie pannicle. I know very many reckon two umbilicall veines, as alſo arteries, and the *urachus* by, or through which the urine flowes into the coate *Allantoides*. But becauſe this is not to be found in women, but onely in beaſts, I willingly omit it, becauſe I doe not intend to mention any parts, but ſuch as belong to humane bodies. Yet if there be any, which can teach me, that theſe parts, which I thinke proper to brute beaſts, are to be found in women, I will willingly confeſſe, and that to his credit, from whom I have reaped ſuch benefit.

There is onely one veine in a childs navill, but no *Vrachus*.

The other things that may be required concerning the navell as of its number, ſite, connexion, temper, and uſe, may eaſily appeare by that we have ſpoken before. For we hove apparently ſet downe the uſe, when we ſaid the navell was made for that purpoſe, that the infant may be nouriſhed by it, as the tree by the roote, by reaſon of the continuation of the veſſels thereof, with the preparing ſpermaticke veſſels, made by God for that purpoſe, to whom be honour and glory for ever and ever. Amen.

The End of the third Booke.

THE FOURTH BOOKE TREATING OF THE Vitall parts contained in the Cheſt.

The Preface.

HAving finiſhed the firſt Booke of our Anatomy, in explanation of the naturall parts contained in the lower belly, now order requires, that we treat of the Breſt; that ſo the parts in ſome ſort already explained (I meane the veines and arteries) may bee diſpatched after the ſame order and manner, without interpoſition of any other matter.

And beſides alſo that we may the more exactly and cheerefully ſhew the reſt of the parts which remaine, as the head and limbs, knowing already the originall of thoſe veſſels which are diſperſed through them. To this purpoſe, we will define what the Cheſt is, and then we will divide it into its parts. Thirdly, in theſe we will conſider which parts containe, and which are contained, that ſo we may more happily finiſh our intended diſcourſe.

CHAP. I.

What the Thorax, *or the Cheſt is; into what parts it may be devided, and the nature of theſe parts.*

THe *Thorax* or Cheſt is the middle belly, terminated or bounded above with the coller-bones, below with the midriffe, before with the *Sternū* or breſt, behind, with the twelve *Vertebra's* of the backe on both ſides, with the true and baſtard ribs, and with the intercoſtall and intercartilagineous muſcles. Nature hath given it this ſtructure and compoſition, leſt that being a defence for the vitall parts againſt externall injuries, it ſhould hinder reſpiration; which is no leſſe needfull for the preſervation of the native heate, diffuſed by the vitall ſpirits, and ſhut up in the heart, as in the fountaine therof, againſt internal injuries, than the other forementioned parts againſt externall. For if the cheſt ſhould have bin all bony, verily it had beene the ſtronger, but it would have hindred our reſpiration or breathing, which is performed by the dilating, and contracting thereof. Wherefore leſt one of theſe ſhould hinder the other, nature hath framed it, partly bony and griſtlely, and partly fleſhie. Some render another reaſon hereof, which is, that nature hath framed the cheſt, that it might here alſo obſerve the order uſed by it in the fabricke of things, which is, that it might conjoine the parts much diſagreeing in their compoſure, as the lower belly, altogether fleſhie, and the head all bony, by a *medium* partaker both of the bony and fleſhie ſubſtance; which courſe wee ſee it hath obſerved in the connexion of the fire and water, by the interpoſition of the aire; of the earth and aire, by the water placed betweene them.

The conteining parts of the Cheſt.

Why nature hath made the Cheſt partly bony, partly griſtlely.

The number of the bones of the *Sternon*.

The Cheſt is divided into three parts, the upper, lower, and middle: the collar bones containe the upper, the midriffe the lower, and the *Sternon* the middle. The *Sternon* in *Galens* opinion is compoſed of ſeven bones, I beleeve by reaſon of the great ſtature of the people that lived then. Now in our times you ſhall oft finde it compact of three, foure, or five bones, although we will not deny but that we have often obſerved it, (eſpecially in young bodies) to conſiſt of ſeven or eight bones.

Wherefore thoſe who have fewer bones in number in their *Sternon*, have them larger, that they might be ſufficient to receive the ribbes. This is the common opinion of the *Sternon*. Yet *Fallopius* hath deſcribed it farre otherwiſe, wherefore let thoſe who deſire to know more hereof, looke in his obſervations.

Cartilago ſcutiformis, the breſt-blade.

At the lower part of the *Sternon* there is a griſtle, called commonly *Furcula*, and *Malum granatum*, or the Pomegranate, becauſe it reſembles that fruite; others call it *Cartilago ſcutiformis*, that is, the breſt-blade.

It is placed there to be as it were a bulwarke or defence to the mouth of the ſtomacke, endued with moſt exquiſite ſenſe; and alſo that it ſhould doe the like to that part of the midriffe, which the liver beares up in that place, ſituate above the orifice of the ventricule by the ligament comming betweene, deſcending from the lower part of the ſame griſtle into the upper part of the liuer.

The common people thinke that this griſtle ſometimes fals downe. But it ſo adheares, and is united to the bones of the *Sternon*, that the falling thereof may ſeeme to be without any danger, although oft times it may bee ſo moiſtened with watery and ſerous humidities, with which the orifice of the ſtomacke abounds, that as it were ſoaked and drunke with theſe, it may be ſo relaxed, that it may ſeeme to be out of its place; in which caſe it may be preſſed and forced by the hand, into the former place and ſeate, as alſo by applying outwardly, and taking inwardly aſtringent and drying medicines to exhauſt the ſuperfluous humiditie.

This griſtle at its beginning is narrow, but more broad and obtuſe at its end, ſomewhat reſembling the round or blunt point of a ſword, whereupon it is alſo called *Cartilago Enſiformis* or the ſwordlike griſtle. In ſome it hath a double, in others a ſingle point.

In old people it degenerates into a bone. Now becauſe we make mention of this griſtle, we will ſhew both what a griſtle is, and how many differences thereof there be, that henceforward as often as wee ſhall have occaſion to ſpeake of a griſtle, you may underſtand what it is.

What a Griſtle is.

A griſtle is a ſimilar part of our bodies, next to a bone moſt terreſtriall, cold, drie, hard, weighty and without ſenſe, differing from a bone in drieneſſe onely, the which is more in a bone. Wherefore a griſtle being loſt cannot be regenerated, like as a bone without the interpoſition of a *Callus*.

The differences thereof.

The difference of theſe are almoſt the ſame with bones, that is from their conſiſtence, ſubſtance, greatneſſe, number, ſite, figure, connexion, action, and uſe. Omitting the other for brevitie ſake, I will only handle thoſe differences which ariſe from ſite, uſe, and connexion. Therefore griſtles, either adhere to the bones, or of, and by themſelves make ſome part, as the griſtles of the eyelids called *Tarſi*, of the *Epiglottis* and throatle. And others which adhere to bones, either adhere by the interpoſition of no *medium*, as thoſe which come betweene the bones of the *Sternon*, the collar bones, the ſhare and hanch bones and others; or by a ligament comming betweene, as thoſe which are at the ends of the baſtard ribs to the *Sternon* by the meanes of a ligament, that by thoſe ligaments being ſofter than a griſtle, the motions of the cheſt, may be more quickly and ſafely performed. The griſtles which depend on bones, doe not onely yeeld ſtrength to the bones, but to themſelves, and the parts contained in them, againſt ſuch things as may breake and bruiſe them. The griſtles of the *Sternon*, and at the ends of the baſtard ribs are of this ſort.

Their twofold uſe.

By this we may gather that the griſtles have a double uſe, one to poliſh and levigate the parts to which that ſlippery ſmoothneſſe was neceſſary for performance of their dutie; and for this uſe ſerve the griſtles which are at the joynts, to make their motions the more nimble. The other uſe is to defend thoſe parts upon which they are placed, from externall injuries, by breaking violent aſſaults, by ſomewhat yeelding to their impreſſion, no otherwiſe than ſoft things oppoſed againſt cannon ſhot. Wee will proſecute the other differences of griſtles in their place, as occaſion ſhall be offered and required.

CHAP. II.

Of the containing, and contained parts of the Cheſt.

The diviſion of the cheſt into its parts.

THe containing parts of the cheſt are both the skinnes, the fleſhie pannicle, the fat, the breaſts, the common coate of the muſcles, the muſcles of that place, the forementioned bones, the coate inveſting the ribbes and the *Diaphragma* or midriffe. The parts contained are the *Mediaſtinum*, the *Pericardium* or purſe of the heart, the heart, the lungs & their veſſels. Of the containing parts, ſome are common to all the body, or the moſt part thereof, as both the skins, the fleſhie pannicle and fat. Of which being we have ſpoken in our firſt Booke, there is no neede now further to inſiſt upon; Others are proper to the cheſt, as its muſcles, of which we will ſpeake in their place, the breſts, the forementioned bones, the membrane inveſting the ribs, and the *Diaphragma* or midriffe.

Wee will treate of all theſe in order, after we have firſt ſhewed you the way, how you may ſeparate the skinne from the reſt of the cheſt. Putting your knife downe even to the perfect diviſion of the skinne, you muſt draw a ſtraite line from the upper part of the lower belley, even to the chinne; then draw another ſtraight line, overtwhart at the collar bones even to the ſhoulder-blades; and in the places beneath the collar-bones (if you deſire to ſhunne prolixitie) you may at once ſeparate both the skinnes, the fleſhie pannicle, the fat, and common coate of the muſcles; becauſe theſe parts were ſhewed and ſpoken of in the diſſection of the lower belley.

Yet you muſt reſerve the breſts in diſſecting of the bodies of women; wherefore from the upper parts of the breaſts, as artificially as you can, ſeparate onely the skin from the parts lying under it, that ſo you may ſhew the Pannicle which there becommeth fleſhie and muſculous, and is ſo ſpred over the necke, and parts of the face, even to the rootes of the haires.

CHAP. III.

Of the Breaſts or Dugges.

Their ſubſtance.

THe Breaſts, as wee ſaid, when we ſpoke of the nature of glandules, are of a glandulous ſubſtance, white, rare, or ſpongious, in maides, and women that doe not give ſucke, they are more ſolid and not ſo large.

Magnitude. Figure. Compoſure.

Wherefore the bigneſſe of the Dugges is different, although of a ſufficient magnitude in all. Their figure is round, ſomewhat long, and in ſome ſort Pyramidall. Their compoſure is of the skinne, the fleſhie pannicle, glandules, fat, nerves, veines, and arteries, deſcending to them from the *Axillaris* under the *Sternon* betwixt the fourth and fifth, and ſometimes the ſixth of the true ribbes.

And there they are divided into infinite rivelets by the interpoſition of the glandules and fat, by which fit matter may be brought, to be changed into milke by the facultie of the dugges.

Which glandules have nerves and which have none.

Wee will ſpeake no more of the nature of glandules, or kernels, as having treated of them before; onely we will add this, that ſome of the glandules have nerves, as thoſe of the breſts, which they receive from the parts lying under them, that is, from the intercoſtall, by which it comes to paſſe that they have moſt exquiſit ſenſe.

Others want a nerve, as thoſe which ſerve onely for diviſion of the veſſels, and which have no action, but onely uſe.

They be two in number, on each ſide one, ſeated at the ſides of the *Sternon* upon the fourth fifth and ſixth true ribs.

Their Connexion.

Wherefore they have connexion with the mentioned parts with their body, but by their veſſels with all other parts, but eſpecially with the wombe by the reliques of the mamillary veines and arteryes, which deſcend downe at the ſides of the breſt-blade; in which place theſe veines inſinuating themſelves through the ſubſtance of the muſcles, are a litle above the navill conjoined with the *Epigaſtricks*, whoſe originall is in ſome ſort oppoſite to the *Hypogaſtrickes*, which ſend forth branches to the wombe. By the meeting of theſe it is more likely that this commerce ſhould ariſe, than from other and thoſe almoſt capillary branches, which are ſometimes ſeene to deſcend to the wombe from the *Epigaſtrick*.

How the breſts and wombe communicate each with other.

Their temper.

They are of a cold and moiſt temper, wherefore they ſay that the blood by being converted into milke * becomes raw, flegmaticke and white by the force of the proper fleſh of the dugs. Their action is to prepare nouriſhment for the new borne babe, to warme the heart from whence they have received heat, and to adorne the breſt.

Recrudeſcere.

Their action and uſe.

By this you may know that ſome Glandules have action, others uſe, and ſome both. At the top of the dugs there are certaine hillockes, or eminencies called teats or nipples, by ſucking of which the child is nouriſhed through certaine ſmall and crooked paſſages; which though they appeare manifeſt to the ſight, whileſt you preſſe out the milke by preſſing the dug, yet when the milke is preſſed out they doe not appeare, nor ſo much as admit the point of a needle, by reaſon of the crooked wayes, made by nature in thoſe paſſages, for this uſe, that the milke being perfectly made ſhould not flow out of its owne accord againſt the nurſes will. For ſo the ſeed is retained and kept for a certaine time in the Proſtats.

The Nipples.

CHAP. IIII.

Of the Clavicles, or Coller bones and Ribs.

IF we ſhould handle theſe parts after the common order, we ſhould now treat of the Muſcles of the Cheſt which move the arme, and ſerve for reſpiration, and which firſt offer themſelves to our ſight.

But for that they cannot be fitly ſhewed, unleſſe wee hurt the muſcles of the ſhoulder blade and necke, therefore I thinke it better, to deferre the explanation of theſe muſcles untill ſuch time as I have ſhewed the reſt of the contained and containing parts, not onely of the cheſt, but alſo of the head, that having finiſhed theſe we may come to a full demonſtration of all the reſt of the muſcles, beginning with thoſe of the head, which wee firſt meet with, and ſo proſequuting the reſt even to the muſcles of the feet, as they ſhall ſeeme to offer themſelves more fitly to diſſection, that ſo, as much as lyes in us, we may ſhunne confuſion.

Wherefore returned to our propoſed taske, after the foreſaid muſcles come the Collar bones, the *ſternon* and ribs.

But that theſe parts may be the more eaſily underſtood, wee muſt firſt know what a bone is, and whence the differences thereof are drawne.

What a Bone is.

Therefore a bone is a part of our body moſt terreſtriall, cold, dry, hard, wanting all manifeſt ſenſe, if the teeth be excepted.

A double ſenſe

Lib. 1. de Locis affectis.

I ſaid manifeſt ſenſe, that you may underſtand that the parts have a double ſenſe of touching, the one manifeſt, ſuch as reſides in the fleſh, skin, membranes, nerves, Teeth and certaine other parts; the other obſcure, yet which may ſuffice to diſcerne the helping and hurting tactile qualityes, ſuch ſenſe the bowels and bones have; for very ſmall fibers of the nerves are diſſeminated to theſe parts by mediation of their coat, or membrane, I ſay ſo ſmall, that they canne ſcarce be diſcerned by the eyes, unleſſe (as *Galen* ſaith) by plucking ſuch coats away from the parts.

But it is no marvaile if nature would have theſe parts in like manner to have ſuch ſmall veines, contrary to the lungs and moſt part of the Muſcles, onely to yeild ſo much nouriſhment to the part, as ſhould be needfull; for ſeeing the ſubſtance of the bones is cold, hard, denſe and ſolid, it waſtes the leſſe.

Why the bones have ſuch ſmall veine..

Wherefore they need not ſo much blood for their nouriſhment, as the hot and ſoft parts; and beſides the leſſer bones have neither veines, nor arteries, but draw fit nouriſhment, onely by the force of the attractive faculty implanted in them.

The differences of bones are taken from many things, as from their *Apophyſes*, *Epiphyſes*, griſtles, necks, heads, ſolidity, cavity, eminencies, marrow, conſiſtence, bignes, number, figure, ſite. Wee will proſecute all theſe as they ſhall offer themſelves in the demonſtration of the bones; to which doctrine we will give a beginning at the Clavicles or collar bones.

Whence the difference of bones may be taken.

The Clavicles are two very hard and ſolid bones, without any great or notable cavity, ſcituate on each ſide betwixt the ſide and upper part of the *ſternon* and top of the ſhoulder-blade, for the ſtrength and ſtability of theſe parts, whence they take the name of *Clavicula* Clavicles (from the Greeke κλεὶς, which ſignifies a key or any other bar or faſtning of a doore.) They carry the ſhape of a ſurgeons Levatory.

The Clavicles or collar bones

But you muſt note that the Clavicles ſeemes to be faſtned to the *ſternon* by the mediation of a griſtlely bone. Moreover the ſpace and cavity contained within the Collar bones is called by the Latines *Iugulum*, by the French the upper *furcula*, becauſe the jugular veines paſſe that way; it ſticks to the upper proceſſe of the ſhoulder by a Griſtle which *Galen* calls the ſmall griſtle bone, although it be nothing elſe but a production of the *Os Iuguli*.

Lib.13. du uſu part.Cap.11.

For the *ſternon*, which we ſaid is framed of diverſe bones, as ſometimes 3, ſomtimes 4, 5, 6, 7, and ſometimes 8, you muſt note they are very ſpongy and full of pores, and of a farre ſofter conſiſtence than the coller bones, wherefore more ſubject to corruption; beſides they are mutually joined by interpoſition of muſcles. Their uſe is to be as a ſhield to defend the vitall parts.

The Ribs are 24. in number, on each ſide 12, ſeaven of theſe are called true or perfect ribs, becauſe they make a circle, at the one end joined to the *ſternon*, on the other to the *vertebra's*; the other are called baſtard or ſhort ribs becauſe they fal ſhort in their way and come not to the *ſternon*; but they are faſtened on the fore-ſide to the *ſternon* by griſtles and ligaments, but on the back part to the tranſverſe *vertebra's* of the backbone, and to the ſides of the ſaid *vertebra's*. But the ſhort ribs are onely knit to the *vertebra's*, wherefore that part of the *vertebra's* is called the root of the ribs.

The Ribs.

The exteriour or fore-part of the Baſtard or ſhort ribs is griſtely, that they ſhould not be broken, and that they might be the eaſier lifted up in the diſtenſions of the ſtomack filled with meat. They are of a conſiſtence ſufficiently hard, yet more towards their root, than at the *ſternon*, where they come nearer together, and are more hardly broken; they are ſmooth both within and without, but in the midſt they have ſome ſigne of being double, or hollow to receive the veines and arteryes, which nouriſh their bony ſubſtance; they are faſhoned like a bow; their uſe is the ſame with the *ſternon*, and beſides to carry and ſtrengthen the muſcles ſerving for reſpiration.

Their conſiſtance.

Chap. V.

The Anatomicall Adminiſtration of the Sternon.

THe Coate inveſting the ribs, which the common Anatomiſts call *Pleura*, is the laſt of the containing parts of the Cheſt, which becauſe it lies hid in the inner part therof, it cannot be ſhowne unleſſe by pulling aſunder of the Sternon; wherefore wee muſt now ſhew the manner of opening the *Sternon*, that hereby we may not violate the originall or inſertion of any of the muſcles. Wherefore firſt you muſt underſtand that he which will ſhew in their proper place the originall and inſertion of the pectorall muſcles, of the *Maſtoides*, of the two muſcles of the bone *Hyois*, of the Muſcles *ſubclavii* and *intercar-*

tilaginei, ought firſt of all to ſeparate all the pectorall muſcles from the *ſternon* and the griſtles from the true ribs; then to cut the ligaments, next the bones themſelves, even from the ſixth true rib to the clavicles.

And then ſhewing the *Mediaſtinum* ſtretched under the *ſternon* all the length thereof, he muſt ſeperate the *ſternon* with his knife and bend it up to the clavicles, and there cut it, reſerving together with it the foure muſcles, that is, the two *Maſtoides* and the two moving the bone *Hyois*, becauſe they either wholy or for the moſt part ariſe from the *ſternon*.

Laſtly the Clavicles being ſomewhat thruſt upwards, the Griſtles muſt on each ſide be turned outwards towards the arme; that ſo the containing parts of the cheſt may not onely lye open to veiw and be eaſily ſhewed, but alſo the muſcles may bee contained in their place, untill they come to be ſhewed in their order.

And becauſe the Collar bones muſt be lifted up very high, that the recurrent nerves may be more eaſily ſeene and the diſtribution of the veines and arteries, the two ſmall ſubclavian muſcles one on each ſide muſt bee ſhowne by the way, who have their originall from the inner and fore part of the Clavicles, and an oblique deſcent to the *ſternon* towards the griſtle of the firſt rib.

For the Clavicles cannot be thus ſeparated, but that theſe muſcles muſt be violated and ſpoiled. Alſo you may divide the *ſternon* in the midſt, that you may ſhew the inward pectorall muſcles whole, having ſeparated the muſcles which ariſe from the upper part. All which things being performed as they ought, we muſt come to the Coat inveſting the ribs and then to the *Mediaſtinum* as ariſing from it.

Chap. VI.

Of the Pleura, *or coat inveſting the Ribs.*

What the membrane inveſting the Ribs is.

THe *Tunica ſubcoſtalis*, or coat inveſting the ribs being the laſt of the containing parts of the Cheſt, is a large and a broad membrane anſwerable in proportion of uſe and action to the *Peritonæum* of the lower belly. For as the *Peritonæum* generally and particularly covers all the naturall parts, binding and holding them in their places, ſo this coat inveſts all the vitall parts in generall becauſe it is ſtretched over all the inſide of the Cheſt, but in particular, whilſt it gives each a coate from it ſelfe.

Its originall.

It hath its originall from the *Perioſtium*, (or as others will have it from the *pericranium*,) inveſting the *vertebra's* of the Cheſt at the roots of the ribs. Wherefore it ſtickes very faſt to the ribs, ſcarce to be ſeparated, as alſo to all the parts bounding the Cheſt, and contained in it.

Veſalius reprehends *Galen*, becauſe he ſaid, that this was double on both ſides; yet *Columbus* defends *Galen*, and verily it is ſeene to be double in the inner part of the Cheſt, under the ribs and the muſcles of the ribs, that in that ſpace there may bee way for the veines, arteryes and nerves.

Whether, as there is a two fold pleuriſie, ſo alſo a double *Pleura*

Some have made it two fold, and divided it into the internall and externall; as thoſe which have made two ſorts of pleuriſyes, the true and baſtard; placing the externall above the Ribs and intercoſtall muſcles; but the internall under the Ribs, muſcles, *Diaphragma* and *ſternon*.

But we to ſhun ambiguity, intend only to proſequute thoſe things which are manifeſt to the eyes; wherefore we ſay that the ribs are lined on the inſide with a double coate; one which immediatly and firmely ſtickes to them on every ſide called the *Perioſtium*, which is common to them and other bones.

The Magnitude and figure.

The other which lyes upon that *Perioſtium* and on the inſide inveſts all the ribs, whence it is called the *ſubcoſtalis tunica*. The ſubſtance, temper and compoſure are the ſame, as in other membranes. The magnitude in length, as alſo the figure is the ſame with the compaſſe of the inner part of the cheſt; the thickneſſe of it is very little. This coat is commonly called the *Pleura* from the name of the part which it covers or lines (for the Greekes call the ribs πλεύραι,) and in like manner which happens betwixt the *Perioſtium* and this *Pleura*, is called either a true or baſtard Pleuriſye.

CHAP. VII.

Of the Mediaſtinum

The ſubſtance and magnitude.

NOw wee muſt ſpeake of the parts contained in the Cheſt, ſeeing we have already handled the containing, beginning with the *Mediaſtinum* as being a part which in diſſection firſt preſents it ſelfe to our ſight. The *Mediaſtinnm* is of the ſame ſubſtance, thicknes, compoſure, number, temper as the *Pleura*. For the ſubſtance of the *Mediaſtinum* is membranous, and though it be ſtretched all the length of the Cheſt, yet it is of a ſmall thicknes, receiving veines, nerves and arteryes from all the parts to which it is knit, like as the *Pleura* doth; but eſpecially from the mamillary veſſels deſcending under the *ſternon*.

It is in number one, but it is made of two membranes produced from the ſubcoſtall, for this aſcending on each ſide by the hollowneſſe of the cheſt to the *ſternon*, and then at right angles it is reflected to the bodyes of the *vertebra's*, whence the *Pleura* hath its originall.

In that reflection there is ſo much diſtance between each membrane, as may bee ſufficient to receive 2 fingers. For otherwiſe, ſeeing that they cannot penetrate through the hart, it was fit each ſide of the *Pleura* ſhould turne to the *Pericardium*, that ſo they might arive at the appointed place without offence. Nether yet is that ſpace void and empty, but woven with many ſmall nervous fibers; *Columbus* adds, that, that place is often filled with a certaine humor beſides nature, which you may draw out, or evacuate by opening the *ſternon*.

The figure.

Yet I would gladly learne of *Columbus*, by what ſignes we may know that ſuch an humor is conteined there. For the figure, the *Mediaſtinum* with the *Pleura* on each ſide repreſents the figure of a Leather bottle, whoſe flat ſide is the *Mediaſtinum*, whoſe other ſide the *Pelura*; the bottome that part of the *pleura* which is next the Midriffe, the mouth the upper part of the *Pleura* at the firſt ribs. We ſhewed the ſite and connexion of the *Mediaſtinum*, when we declared its originall.

The uſe.

The uſe thereof is to ſeparate the vitall parts, as it were into 2 cells, the right and left, that if peradventure it happen that the one be hurt, the creature may live by the benefit of the other.

And it hath another uſe which is to prop and hold up the *Pericardium*, that it fall not uppon the heart with its waight, but toſſed with the motions of the heart and Cheſt, it may move to this or that ſide.

CHAP. VIII.

Of the Diaphragma *or Midriffe.*

What the midreffe is.

ALthough the Midriffe may ſeeme to be accounted rather a part containing than contained, yet for commodities ſake we have deferred the demonſtration thereof till now. Therefore it is a muſcle round and long, terminating the lower part of the Cheſt.

Its ſubſtance, compoſition &c.

It is of the ſame ſubſtance, compoſition and temper, as the muſcles of the *Epigaſtrium*, it is made of two coats the lower whereof is from the *Peritonaeum*, and the upper from the *Pleura*. Which getting to them fleſh but not there, but in their circumference, by the benefit of the blood brought thither by the veines and arteries diſtributed through it, turne into a muſcle, whoſe middle is nervous and membranous, but the extremityes by which it is inſerted, one while fleſhy as in that part next to the baſtard ribs; another while tendonous, as where it touches the firſt & ſecond *vertebra's* of the loines, for it ends in them by 2 tendons manifeſt enough. It is one in number, interpoſed with an oblique ſite betwixt the naturall and vitall parts.

Connexion. It hath connexion with the lower part of the *ſternon* and ſhort ribs, and the two firſt *vertebra's* of the loines, but by its coats and veſſels with the parts from whence it received them.

Quantity. The extent thereof is equall to the compaſſe of the lower part of the Cheſt. The length of it is from the breſt blade even to the firſt and ſecond *vertebra* of the loines. The thicknes is diverſe, for it is far thicker in its fleſhy extremity, than in its nervous originall.

Action. The Action thereof is to helpe the expulſion of the Excrements by the mutuall aſſiſtance of the *Epigaſtrick* muſcles, but the chiefe uſe is for reſpiration, of which it is one of the prime inſtruments. This partition the Ancients called *Phrenes*, becauſe the inflammation thereof cauſed like ſymptomes as the inflammation of the Braine, by reaſon of the large nerves on each ſide one which come to it directly & primarily from the third, fourth and fifth *vertebra* of the neck. This muſcle differs from other muſcles, ſpecially in figure. It is preforated in three places, to giue way or paſſage to the aſcendent Hollow-veine, to the Artery *Aorta*, and the Gullet.

Why the *Diaphragma* was called *Phrenes*.

Chap. IX.

Of the Lungs.

Their ſubſtance. quantity. The Lobes thereof. THe Lungs are of a ſoft ſubſtance and fleſh, rare and like a ſponge, of a various colour pale red, their quantity is ſufficiently large; for moſt commonly they are divided into 4 lobes disioined with a manifeſt and viſible diviſion, on each ſide two, whereby they may be the more eaſily opened and contracted, and the aire may the better enter.

Beſides alſo in large bodyes, who have a very great cheſt, there is found a fifth lobe, ariſing from the ſecond lobe of the right ſide, as a cuſhion, or bolſter to beare up the hollow veine aſcending from the midriffe to the heart.

In little men who have a ſhorter Cheſt, becauſe the Heart is ſo neere as to touch the *Diaphragma*, this Lobe is not ſeene, yet it is alwayes found in Dogges.

Figure. The Lungs repreſent the figure or ſhape of an Oxes foot, or hoof, for like it they are thicker in their *baſis*, but ſlenderer in their circumference, as you may ſee in blowing them up, by the weazon, with your mouth or a paire of bellowes. Compoſition. They are compounded of a coate comming from the *Pleura*, which on each ſide receives ſufficient number of nerves from the ſixth conjugation; and alſo of the *Vena arterioſa* comming from the right ventricle of the heart, and the *Arteria venoſa* from the left, as ſhall be ſhewed in the Anatomy of the heart; beſides the *Aſpera arteria* or Weazon comming from the throat, and laſtly its owne fleſh, which is nothing elſe than the concretion of cholerick blood poured out like foame about the diviſions of the foreſaid veſſels, as we have ſaid of other parts.

The body of the Lungs is one in number, unleſſe you will divide it into two, by reaſon of the variety of its ſite, becauſe the Lobes of the Lungs ſtretched forth into the right & left ſide doe almoſt involve all the heart, that ſo they may defend it againſt the hardnes of the bones which are about it; they are tyed to the heart, cheifly at its *baſis*, but to the roots of the ribs and their *vertebra's* by the coat it hath from thence; but by the veſſels to theſe parts from whence they proceed. The ſticking of the lungs to the Ribs. But oft times preſently from the firſt and naturall conformation they are bound to the circumference of the ribs by certaine thin membranous productions which deſcend from thence to the Lungs, otherwaies they are tyed toe the ribs by the *Pleura*.

Their nouriſhment. The nouriſhment of the Lungs is unlike to the nouriſhment of other parts of the body; for you cannot find a part equally rare, light and full of aire, which may be nouriſhed with blood equally thin and vaporous. In temper they incline more to heat than to cold, whether you have regard to their compoſure of cholerick blood, or their uſe, which is to prepare and alter the aire that it hurt not the heart by its coldnes. The Lungs is the inſtrument of voice and breathing by the Weazon or windpipe. For the Lobes are the inſtruments of voice, and the ligaments, of reſpiration. But the

Larinx or Throtle is the chiefe inſtrument of the voice, for the Weazon firſt prepares the voice for the Throtle, in which it being in ſome meaſure formed is perfected in the Pallate of the mouth, as in the upper part of a lute, or ſuch like inſtrument, by the help of the *Gargareon* or *uvula* as a certaine quill to play withall.

But as long as one holds his breath, he cannot ſpeak; for then the muſcles of the *Larinx*, Ribs, the *Diaphragma* and the *Epigaſtrick* muſcles are preſſed downe, whence proceeds a ſuppreſſion of the vocall matter, which muſt be ſent forth, in making or uttering a voice.

Why the lungs are light,

Nature would have the Lungs light for many reaſons, the firſt is that ſeeing they are of themſelves immoveable, they might be more obſequious and ready to follow the motion of the cheſt, for when it is ſtraitened, the Lungs are ſtraitened and ſubſide with it; and when it is dilated, they alſo are dilated, and ſwell ſo big that they almoſt fill up all the upper capacity thereof.

Another cauſe is that by this their rarity they might more eaſily admit the entring Aire, at ſuch times as they have much, or ſuddaine neceſſity, as in running a race.

And laſtly, that in Pleuriſies and other purulent abſceſſes of the Cheſt the *Pus* or matter poured forth into the capacity of the Cheſt may be ſuckt in by the rare ſubſtance of the Lungs, and by that meanes the ſooner ſent forth and expectorated.

The uſe of Reſpiration, or breathing.

The uſe of reſpiration is to coole and temper the rageing heat of the Heart. For it is cooled in drawing in the breath by the coole aire, and in ſending out thereof by avoiding the hot fuliginous vapour. Therefore the Cheſt performes two contrary motions, for whileſt it is dilated it drawes in the encompaſſing aire, and when it is depreſſed it expels the fuliginous vapour of the Heart; which any one may eaſily perceive by the example of a paire of Smithes bellowes.

Chap. X.

Of the Pericardium or purſe of the Heart.

Whence it hath its matter

THe *Pericardium* is as it were the houſe of the Heart, which ariſeing at the *baſis* thereof (either the ligaments of the *vertebra's* ſituate there or els the veſſels of the heart yeilding it matter) is of a nervous, thick and denſe ſubſtance without any fibers. It retaines the figure of the Heart, and leaves an empty ſpace for the heart to performe its proper motions. Wherefore the bignes of the *Pericardium* exceeds that of the heart.

It conſiſts of a double coate, one proper of which wee have ſpoken, another common coming from the *pleura*; and alſo of veines, arteries and nerves; the veſſels partly comming from the mamillary, partly from the *Diaphragma*, chiefly there where it touches it; the nerves come on each ſide from the ſixt conjugation.

Number and connexion.

It is onely one, placed about the heart and annexed to it at the *Baſis* thereof by its membranes, to the originall of the Lungs, and the *vertebra's* lying under them, and by the veſſels to the parts from whence it received them. It is of a cold and dry temper as every membrane is.

Vſe.

The uſe thereof is to cover the heart, and preſerve it in its native humidity, by a certaine naturall moyſture contained in it, unles you had rather ſay that the moiſture we ſee contained in the *Pericardium*, is generated in it after death by the condenſation and concretion of the ſpirits. Although this ſeemes not very likely; becauſe it growes and is heaped up in ſo great quantity in liveing bodyes, that it hinders the motion of the heart, and cauſes ſuch palpitation or violent beating thereof; that it often ſuffocates a man.

From whence the matter of the watery humor conteined in the *Pericardium*.

For this Palpitation happens alſo to hearty and ſtout men, whoſe harts are hot, but blood thin and wateriſh by reaſon of ſome infirmity of the ſtomack or Liver; and this humour may be generated of vapours which on every ſide exhale into the *pericardium* from the blood boileing in the ventricules of the heart, where kept in by the denſity thereof, they turne into yellowiſh moiſture, as we ſee it happens in an Alembeck.

The Conſiſtence.

Nature would have the *pericardium* of a denſe and hard conſiſtence, that by the force thereof the heart might bee kept in better ſtate; for if the *Pericardium* had beene bony, it would have made the heart like iron by the continuall attrition; on the contrary, if it had beene ſoft and fungous, it would have made it ſpongy and ſoft like the Lungs.

CHAP. XXX.

Of the Heart.

What the heart is, and of what ſubſtance.

THe Heart the chiefe manſion of the Soule, the organe of the vitall faculty, the beginning of life, the fountaine of the vitall ſpirits, & ſo conſequently the continuall nouriſher of the vitall heate, the firſt living and laſt dying, which becauſe it muſt have a naturall motion of it ſelf, was made of a denſe ſolide and more compact ſubſtance than any other part of the body.

The three ſorts of fibers of the Heart.

The fleſh thereof is woven with three ſorts of fibers, for it hath the right in the inner part deſcending from the *baſis* into the point, that they might dilate it, and ſo draw the blood from the hollow veine into the receptacles thereof, and the breath or aire from the lungs by the *Arteria venoſa*; it hath the tranſverſe without, which paſſe through the right at right angles, to contract the Heart, and ſo drive the vitall ſpirits into the great Artery *Aorta*, and the cholericke blood to the Lungs by the *vena arterioſa*, for their nouriſhment; It hath the oblique in the midſt to containe the Aire and blood drawne thither by the forementioned veſſels untill they be ſufficiently elaborate by the heart.

All theſe fibers doe their parts by contracting themſelues towards their originall, as the right from the point of the heart towards the *baſis*, whereby it comes to paſſe that by this contraction of the fibers the heart dilated becomes ſhorter, but broader, no otherwiſe than it is made more long and narrow by the contraction of the tranſverſe, but by the drawing of the oblique it is leſſened in that part which lookes towards the *vertebra's*, which chiefly appeares in the point thereof.

The magnitude

It is of an indifferent bignes, but yet in ſome bigger, in ſome leſſe according to the diverſe temper of Cold or hot men, as wee noted in the liver.

Figure.

The figure thereof is Pyramidall, that is, it is broader in the *baſis*, and narrower at his round point.

Compoſition

It is compoſed of the moſt denſe fleſh of all the body, by the affuſion of blood at the diviſions and foldings of the veſſels, and there concrete; as it happens alſo to the other Entrailes. For the blood being there a litle more dryed, than that which is concrete for the making of the Liver, turnes into a fleſhy ſubſtance more denſe than the common fleſh, even as in hollow ulcers, when they come to a cicatrize.

The proper veſſels.

It hath the Coronall veines and arteryes, which it receives either on the right ſide from the hollow veine, or on the left from the *baſis* at the entranc of the Artery *Aorta*.

The Nerves,

You cannot by your Eye diſcerne that the Heart hath any other Nerves than thoſe which come to it with the *Pleura*.

Yet I have plainely enough obſerved others in certaine beaſts, which have great Hearts, as ſwine; they appeared ſeated under the fat which covers the veſſels, and *baſis* of the heart, leſt the humid ſubſtance of theſe parts ſhould be diſſolved and diſſipated by the burning heat of the Heart. Whereby you may perceive that the heat of the heart is different from the Elementary heat, as that which ſuffers fat to grow about this Entraile, where otherwiſe it doth not concrete unleſſe by cold or a remiſſe heat, which thing is chiefly worth admiration.

Number and ſite.

The Heart is one alone, ſcituate moſt commonly upon the fourth *Vertebra* of the Cheſt, which is in the midſt of the Cheſt. Yet ſome thinke that it inclines ſomewhat to the left ſide becauſe we there feele the motion or beating thereof; but that happens by reaſon of its left ventricle, which being it is filled with many ſpirits, and the beginning of the arteryes, it beats far more vehemently, than the right. It required that ſeat by the decree of Nature, becauſe that Region is the moſt ſafe and armed, and beſides it is here on every ſide covered as it were with the hands of the Lungs.

Connexion.

It hath connexion with the fore mentioned *Vertebra's*, but by the parts compoſeing it, with thoſe parts from whence it hath them; with the Lungs by the *Vena arterioſa*, and the *Arteria venoſa*, and laſtly with all the parts of the body by the Arteries which it ſends to them all.

Temper and action.

What the vitall ſpirit is.

It is of a hot and moiſt temper, as every fleſhy part is. The action thereof is, firſt to prepare the blood in its right ventricle, for the fit nouriſhment of the Lungs, for from hence it is that *Galen* ſaith; this right ventricle was made for the neceſſity of the lungs. Secondly to generate the vitall ſpirits in its left ventricle for the uſe of the whole body. But this ſpirit is nothing els than a certaine middle ſubſtance between aire and blood fit to preſerve and carry the native heat, wherefore it is named the vitall, as being the author and preſerver of life. In the inner parts of the heart there preſent themſelves to our conſideration the ventricles and the parts contained in the ventricles and between them; ſuch are the *Valvulæ* or valves, the veſſels and their mouthes, their diſtribution into the lungs, the wall or partition, and the two productions or Eares of the heart; which becauſe they are doubtfull, whether they may be reckoned amongſt the externall or internall parts of the heart, I will here handle in the firſt place.

The *Auriculæ Cordis*, or eares of the heart.

Therefore theſe *Auriculæ* or Eares are of a ſoft and nervous ſubſtance, compact of three ſorts of fibers, that ſo by their ſoftneſſe they might the more eaſily follow the motions of the heart, and ſo breake the violence of the matters entring the heart with great force when it is dilated. For otherwiſe by their violent and abundant entrance they might hurt the heart, and as it were overwhelme and ſuffocate it; but they have that capacity which we ſee given by nature, that ſo they might as it were keep in ſtore the blood and aire, and then by litle and litle draw it forth for the uſe or neceſſity of the heart. But if any enquire, if ſuch matters may be drawne into the heart by the only force of the *Diaſtole ad fugam vacui*, for avoiding of emptineſſe; I will anſwere that that drawing in, or attraction is cauſed by the heat of the heart; which continually drawes theſe matters to it no otherwiſe than a fire drawes the adjacent Aire, and the flame of a candle the tallow which is about the weake for nouriſhments ſake. Whileſt the heart is dilated it drawes the aire, whileſt it is drawne togeather or contracted, it expells it. This motion of the heart is abſolutely naturall, as the motion of the Lungs is animall. Some adde a third cauſe of the attraction of the heart; to wit, the ſimilitude of the whole ſubſtance. But in my judgment, this rather takes place in that attraction which is of blood by the *venæ coronales* for the proper nouriſhment of the heart, than in that which is performed for attraction of matters for the benefit of the whole body.

Their magnitude and number.

Their uſe.

Theſe eares differ in quantity, for the right is far more capacious than the left becauſe it was made to receive a greater aboundance of matter. They are two in number, on each ſide one, ſcituate at the *Baſis* of the heart; The greater at the entrance of the hollow veine into the heart, the leſſe at the entrance of the *veinous* and of the great Artery with which parts they both have connexion. We have formerly declared what uſe they have; that is, to break the violence of the matters, and beſides to bee ſtayes or props to the *Arteria venoſa* and great Arterye, which could not ſuſtaine ſo rapid and violent a motion as that of the Heart by reaſon of their tenderneſſe of ſubſtance.

Of the ventricles of the Heart.

The partitio betweene the ventricules of the Heart.

THe ventricles are in number two, on each ſide one, diſtinguiſhed with a fleſhy partition ſtrong enough, having many holes in the ſuperficies, yet no where pearcing through.

Why the right ventricule is more capacious and leſſe compact.

The right of theſe ventricles is the bigger and incompaſſed with the ſofter and rarer fleſh; the left is the leſſer but is engirt with a threefold more denſe and compact fleſh; for the right ventricle was made for a place to receive the blood brought by the hollow veine, and for diſtributing of it, partly by the *vena arterioſa* into the Lungs for their nouriſhment, partly into the left ventricle, by ſweating through the wall or partition, to yeild matter for the generation of the vitall ſpirits.

Why the right ventricle is more capacious and leſſe compact.

Therefore becauſe it was needfull there ſhould be ſo great a quantity of this blood, it was likewiſe fit that there ſhould be a place proportionable to receive that matter. And becauſe the blood which was to bee received in the right ventricle was more thicke, it was not ſo needfull, that the fleſh to containe it ſhould be ſo compact; but on the contrary the arterious blood and vitall ſpirit have need of a more denſe receptacle, for feare of waſting and leſt they ſhould vaniſh into aire; and alſo leſſe roome that ſo the heat being united might become the ſtronger, and more powerfully ſet upon the elaboration of the blood and ſpirits.

The action of the right ventricle.

Therefore the right ventricle of the heart is made for the preparation of the blood appointed for the nouriſhment of the Lungs, and the generation of the vitall ſpirits, as the lungs are made for the mitification, or quallifying of the Aire. Which works were neceſſary, if the Phyſicall Axiome bee true; That like is nouriſhed by like, as the rare and ſpongious lungs with more ſubtle blood; the ſubſtance of the heart groſſe and denſe, with the veinous blood as it flowes from the Liver, that is groſſe.

And it hath its Cororall veines from the Hollow veine, that it might thence drawe as much as ſhould be ſufficient.

The action of the left ventricle.

But the left ventricle is for the perfecting of the vitall ſpirit, and the preſervation of the native heat.

Of the Orifices and Valves of the Heart.

The uſes of the foure orifices of the Heart.

THere be foure Orifices of the heart, two in the right, & as many in the left ventricle; the greater of the two former gives paſſage to the veine, or the blood carried by the hollow veine to the heart; the leſſer opens a paſſage to the *vena arterioſa* or the cholerick blood carryed in it for the nouriſhment of the lungs.

The larger of the two other makes a way for the diſtribution of the Artery *Aorta* and the vitall ſpirit through all the body; but the leſſer gives egreſſe and regreſſe, to the *Arteria venoſa*, or to the aire and fuliginous vapours. And becauſe it was convenient that the matters ſhould bee admitted into their proper ventricles by theſe orifices, by the *Diaſtole*, to wit, into the right ventricle by the greater orifice, and into the left by the leſſer, and becauſe on the contrary it was fit that the matters ſhould be expelled by the *ſyſtole* from their ventricles by the fore-mentioned orifices.

The valves.

Therefore nature to all theſe orifices hath put eleaven valves, that is to ſay, ſixe in the right ventricle, that there might bee three to each orifice; five in the left, that the greater orifice might have three, and the leſſer two, for the reaſon we will preſently give.

How they differ.
Action.
Site.
Figure.
Subſtance.

Theſe valves differ many wayes; firſt in action; for ſome of them carry in matter to the heart, others hinder that which is gone out that it come not back againe; Secondly they differ in ſite, for thoſe which bring in have membranes without, looking in; thoſe which carry out have them within looking out. Thirdly in figure, for thoſe which carry in, have a pyramidall figure, but thoſe which hinder the comming back againe are made in the ſhape of the Roman letter C. Fourthly in ſubſtance, for the former for the moſt part are fleſhy, or woven with fleſhy fibers into certaine fleſhy knots ending towards the point of the heart. The latter are wholy membranous.

Number.
Motion.

Fiftly they differ in number, for there be only five which bring in, three in the right ventricle at the greater orifice, and two in the left at the leſſer orifice; thoſe which prohibite the comming back are ſixe in each ventricle, three at each orifice. Laſtly they differ in motion; for the fleſhy ones are opened in the *Diaſtole* for the bringing in of blood and ſpirit, and contrarywiſe are ſhut in the *ſyſtole*, that they may containe all or the greater part of that they brought in. The membranous on the contrary are opened in the *ſyſtole* to give paſſage forth to the blood and ſpirits over all the body, but ſhut in the *Diaſtole*, that that which is excluded might not flow backe into the Heart. But you ſhall obſerve that nature hath placed onely two valves at the Orifice of the *Arteria Venoſa*, becauſe it was needfull that this Orifice ſhould bee alwayes open, either wholy, or certainely a third parte thereof; that

Why there be onely two valves at the Arteria venoſa the Aire might continually be drawne into the heart by this orifice in inſpiration, and ſent forth by exſpiration in the contraction of the heart. Whereby we may gather this, that there is but one third part of that Aire we draw into the heart in breathing, ſent forth againe in the forme of vapour in exſpiration, becauſe nature would have but one third part of the orifice to ly open for its paſſage out. Therefore the exſpiration or breathing out, and the *ſyſtole* of the heart and arteryes, is ſhorter than the inſpiration, ſo that we may truely ſay, that the inſpiration, or drawing the breath in, is equally ſo long as the exſpiration is together with the reſt, which is in the middeſt between the two motions.

CHAP. XII.

Of the Diſtribution of the Vena arterioſa, *and the* Arteria venoſa.

HAving hitherto ſhewed the originall of each of the veſſels of the Heart, we muſt now ſpeake of their diſtribution. The *Vena arterioſa*, or the arterious veine, and the *arteria venoſa* or the *veinous arterie* each proceeding out of his proper ventricle, that is, the right and left, are divided into two large branches; one of which goes to the right and the other to the left hand, the one lying croſſe wayes over the other, the veine alwaies riding over the arterye, as you may underſtand better by the ſight of your eyes, than by reading of bookes. Theſe branches at their entrance of the lungs are divided into two other large branches, and each of them goe to his peculiar Lobe of the lungs; and theſe againe runne almoſt into infinite other branches, diſperſed in three places over the Lungs.

The Artery alwayes lyes under the veine.

Theſe veſſels have acquired their names by reaſon of that tranſmutation of conſiſtence, whereby the compoſure of a veine degenerates into an arterye, and that of an arterye into a veine, for the commodity of life. For this is a miracle of prudent nature to change the coats of the veſſels of the lungs; producing a veine which in its body ſhould imitate an arterye, and an arterye which ſhould repreſent a veine: For if the *vena arterioſa* ſhould have retained its proper conſiſtence, the arterious blood which is carried by it from the heart to nouriſh the lungs, might by reaſon of its ſubtility penetrate through, and flow away by reaſon of the rarity of the veinous texture: and ſo nature ſhould never have attained her conceived end, that is, to nouriſh the Lungs, by reaſon of the continuall motion of their contraction and dilatation.

A twefold reaſon why the veine was made Arterious, or like an Artery.

For nouriſhment cannot be aſſimulated to the part, unleſſe it be put and cleave to it. Wherefor it was fit, that nature ſhould make the body of this veine ſolid, that it might be immoveable, unſhaken and ſtubborne (in reſpect of a veine which by its ſoftneſſe would have been too obſequious and yeilding to the agitation of the Lungs) that ſo it might have nouriſhment, which might be diffuſed into all parts thereof, and which might neither bee drawne by its *Diaſtole*, nor driven back into the heart by its *ſyſtole*. But the arterye hath the conſiſtence of a veine, that by that veinous ſoftneſſe according to the neceſſity of nature it might be the more readily contracted and dilated, to bring the Aire in and carry the vapours forth of the heart. Here wee meet with a difficulty, which is, by what way the blood is carried out of the right into the left ventricle of the heart.

Why the Artery was made like a veine.

Galen thinkes that there be certaine holes in the partition made for that purpoſe, and verily there are ſuch, but they are not perforated. Wherefore *Columbus* hath found out a new way, which is, that the blood is carried to the lungs by the *vena arterioſa*, and there attenuated; and carried from thence together with the aire by the *Arteria venoſa* to the left ventricle of the heart; this he writes truely very probablely. *Botallus* in his treatiſe *De Catarrho* hath found out a third way, to wit a veine, which he calls *Arteriarum nutrix*, that is, The nurſe of the Arteryes, which creepes a litle above the Coronall to the right eare of the Heart, and then goes into the left eare thereof. But yet I am very much afraid, that this veine obſerved by *Botallus*, is that veſſell obſerved by *Fallopius*, whereby the *Vena arterialis* is joined to the *Aorta*, & by which all the vitall blood is carryed for the forming and nouriſhment of the lungs

By what way blood may paſſe out of the right into the left ventricle.

The veine called the nurſe of the Arteries

Fallop. initio obſer. Arteriarum.

Gal.lib.15 de uſu part.cap.6.

whileſt the infant is yet in the wombe. Of which alſo *Galen* makes mention, but it had laine hid from his time to this day, but that *Fallopius* raiſed up the memory of it againe.

Chap. XIII.

The diſtribution of the aſcendent Hollow veine.

Gal.lib.de form.fœtus.

The greater deſcendent branch of the hollow veine.

The upper branch of the hollow veine is the leſſe.

Venæ phrenicæ, Coronales.

Vena Arterioſa

Vena Azygos, or ſine pari.

This *Azygos* ſometimes two

How the matter of a pleuriſie may be evacuated by vrine.

Intercoſtalis.

Mammariæ.

Cervicalis.

Muſculoſa.

In what place cupping glaſſes may be fitly applyed in a baſtard Pleuriſie.

THe Hollow veine riſeing out of the gibbous part of the Liver, and reſembling (according to *Galen*) the body of a tree, is divided into two notable branches, but not of a like bignes. For the greater, by the hind part of the Liver upon the back bone and by the way, receives certaine other branches from the ſubſtance of the Liver which entred not into the great trunck with the reſt. You may often ſee this deſcendent branch even to the backe bone upon which it lyes in this its deſcent, covered with the ſubſtance of the liver, ſo that it may ſeeme that branch proceeds not from that common trunck together with the aſcendant, although indeed it alwayes doth. But the leſſer branch aſcends to the upper parts, and is diſtributed after this manner following. For firſt ariſeing into the midriffe it beſtowes two ſmall veines upon it, on each ſide one, which from that part are called *Phrenicæ*. But from thence when it arrives at the right Eare of the Heart, it makes the *Coronales*, the Coronall or Crowne veines, which compaſſe the *baſis* of the heart in manner of a Crowne. Thirdly entring ſomewhat more deeply into its right Eare, in its greater part it produces the *vena arterioſa*. Fourthly lifted up above the heart, on the right ſide it produces the veine *Azygos* or *ſine pari* (that is, without a fellow) which deſcending to the fourth rib, (reckoning from above downewards) nouriſheth the intercoſtall muſcles and alſo the membranes of the 8 lower ribs, on both ſides, ſending a branch into each of the muſcles at the lower part of the rib, which may bee ſufficient for their nouriſhment. Beſides alſo oftentimes, eſpecially in little men, this veine *Azygos* nouriſhes all the ſpaces between all the ribs by the like branches, which it ſends in the ſame manner to the foure upper ribs. Moreover alſo this *Azygos* ſometimes, though but ſeldome, is found double, that is, on each ſide one. Here you muſt chiefly obſerve, that this veine after it hath nouriſhed the ſpaces between the lower ribs, in its remainder deſcends under the *Diaphragma* and is joined on the left ſide to the Emulgent vein; by which it is manifeſt how an Abſceſſe, may be critically evacuated by the urine, in a pleuriſye. But this ſame *Azygos* is more depreſſed on the right ſide, and meets with the *Venæ lumbares*, but eſpecially with one of them, which goes downe to the thigh, whereby *Fallopius* gathers that it is very convenient in the beginnings of Pleuriſyes to open the *vena poplitis*, the veine of the Ham. Fifthly above the *Azygos* (when it is wanting there) it ſends forth the branch called *Intercoſtalis* to the other ſpaces between the upper ribs; although this is ſometimes ſeene to come from the *Axillares*, which *Sylvius* calls the *ſubclaviæ*. Sixtly it brings forth the *Mammariæ* ſo called, becauſe in their greater part they run to the dugs between the fourth and fifth ribs, for the uſes formerly mentioned; men and women have on each ſide one of theſe comming from the *Subclaviæ*. They are ſometimes found to proceed by a certaine common orifice from the hollow veine, before it be divided into the *Subclavian* branches, but it is rather in beaſts than in men; theſe veines deſcending by the ſides of the *ſternon* yeild nouriſhment to the 2 inner muſcles of the cheſt, to the 7 intercoſtall muſcles of the true ribs, to the *ſternon* it ſelfe and to its ligaments and griſtles, as alſo to the *Mediaſtinum* and the upper part of the right muſcles, and the adjacent parts. Seaventhly it produces the *Cervicalis* which on both ſides through the holes of the productions of the *Vertebra's* of the necke, aſcends to the head, ſending many ſmall branches into the ſpinall marrow through the holes by which the nerves paſſe, and alſo into the membranes, ligaments, griſtles, bones, and neighbouring muſcles. Eightly the *Muſculoſa* or muſculous, which alſo ariſeing out of the *Subclaviæ* is devided into two other branches; the one whereof goeth upon the breſt to the paps, nouriſhing the foremoſt muſcles; wherefore in a baſtard pleuriſie Cupping glaſſes may be fitly applied in this place.

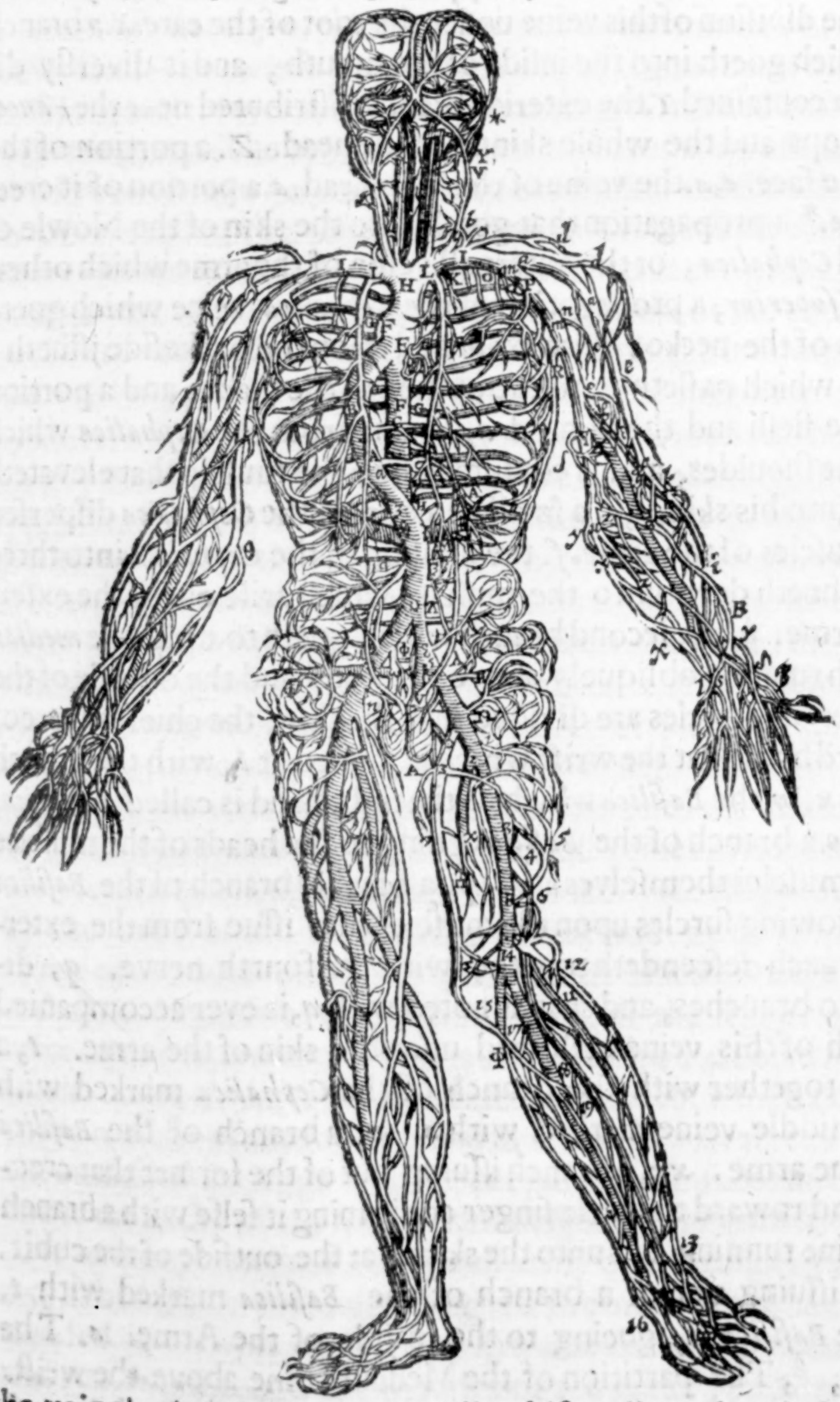
The

Axillaris.
Humeralis.
Iugularis interna, et externa.
Into what parts the *Iugularis interna* goes.

The other branch deſcends to the upper muſcles of the cheſt, but ſpecially to that which is called *Latisſimus*. The tenth is the *Axillaris*. The eleventh the *Humeralis*, of which wee will treat in their place. The twelfth and laſt is the *Iugularis* properly ſo called, which is twofold, the internall and externall. The internall being the leſſer doth preſently on both ſides from this very beginning aſcend by the ſides of the *Aſpera Arteria* or weazon even to the mouth and skull, yeilding nouriſhment to the parts by which it paſſes, as to the next membranes and nerves. But when it comes to the *baſis* of the *Cranium* it is divided into two branches, the greater whereof going back along the *baſis* of the *Cranium* to the hind part thereof, ſending a branch to the long muſcle ſcituate upon the *æſophagus*, it enters the *Cranium* with the ſmall *Carotides* through the hole of the nerves of the ſixth conjugation, where they become one common veſſell. The leſſer ſending a ſlippe to the organe of hearing by the hole called *Cæcum* (or the blind) alſo enters the *Cranium* and is ſpent in the thicker *meninx* nere to the hole of the third and fourth conjugation of nerves. The externall Iugular veine being greater and fairer, moſt commonly ſimple, yet ſometimes double, either preſently at his beginning, or a little after, aſcends ſuperficially on both ſides of the neck, between the broad muſcle or fleſhy pannicle, being there eaſie to be diſcerned, and other muſcles ſcituate at the ſides of the neck, into which as alſo into the skin it ſends certaine branches for nouriſhment.

Into what parts the *Iugularis externa* goes.

The Figure of the hollow veine whole and freed from the reſt of the body.



A, The trunke of the hollow veine. the lower

AA, At this place of the Liver, is ſeated the left part of the veine, and diſtributeth branches to the left ſide.

B, Sheweth how the trunke of the hollow veine in the cheſt (to give way to the heart) is curved or bowed to the right hand.

Betwix A. and B. that part of the hollow veine which is betwixt the gibbous ſide of the Liver and the Midriffe.

C. the left midriffe veine called *Phrenica ſiniſtra*, from which ſurcles doe run in a man unto the purſſe of the heart, for the midriffe and it doe grow together.

D, The orifice of the hollow veine which groweth unto the heart.

E, the crown-veine called *coronaria*, which like a crowne compaſſeth the baſis of the heart, and ſprinkleth his ſurcles on the outſide therof as far as to the cone or point.

FF, The trunke of the veine, *Azygos* or *non parill*, deſcending along the right ſide of the racke-bones unto the loynes. *GG*, the lower intercoſtall veines, to the branches of the veine *Azygos*, which go unto the diſtances betwixt the ribs, & afford ſurcles unto the muſcles which lye upon the ribs & the racke-bones, & the membranes of the cheſt. *H*, the diviſion of the hollow vein into two ſubclavian trunks neare the Iugulum under the breſt-bone. *II*, the ſubclavian branch tending on either ſide unto the arme; called by ſome *Axillaris*. *K*, the upper intercoſtall veine which commonly ſendeth three ſlips unto the diſtances of the upper ribs, unto which the firſt intercoſtall veine ſent no branches. *LL*, the deſcending mammary veine: this deſcendeth under the breſt-bone unto the right muſcles of the *Abdomen*, & affoordeth ſurcles to the diſtances of the griſtles of the true ribs, to the Mediaſtinum, the muſcles that lye upon the breaſt and the skin of the *Abdomen*. *M*, the coniunction of the mammary with the Epigaſtricke vein aſcending about the navill under the right muſcles. *N*, the veine of the necke called *Ceruicalis*, aſcending toward the Scull, which alloweth ſurcles to thoſe muſcles that lye upon the neck. *O*, the veine called *Muſcula*, which is propagated with many ſurcles into the muſcles that occupy the lower parts of the necke and the upper parts of the cheſt. *P*, *Thoraeica* ſuperior, the upper cheſt veine which goeth to the muſcles lying uppon the cheſt, to the skinne of that place and to the dugges. *Q*, the double *Scapularis* diſtributed into the hollow part of the ſhoulderblade and the neighbour muſcles: ſo alſo betwixt *P* and *R*, ſometimes ſmall veines doe reach unto the glandules that are in the arme-holes. *R*, *Thoracica inferior* running downward along the ſides of the cheſt, and eſpecially diſtributed into the muſcle of the arme called *Latiſsimus*. *S*, the inner Iugular veine which entreth into the Scull after it hath beſtowed ſome ſurcles uppon the rough artery. *T*, the externall Iugular veine. *V*. the diviſion of this veine under the root of the eare. *X*. a branch of the externall Iugular which goeth into the inſide of the mouth, and is diverſly divided into the parts therein contained. *Y*. the exterior branch diſtributed near the *Fauces* into the muſcles of the chops and the whole skinne of the head. *Z*. a portion of the branch, *y*, reaching unto the face. *a*, *a*. the veine of the fore-head. *a*. a portion of it creeping through the temples *a*.* a propagation that goeth unto the skin of the Nowle or *Occiput*. *a a*. the veine called *Cephalica*, or the externall veine of the arme which others call *Humeraria*. *b*. *Muſcula ſuperior*, a propagation of the *Cephalica* veine which goeth unto the backward muſcles of the necke. Betwixt *b*. and *d*. on the backeſide iſſueth a branch from the *Cephalica* which paſſeth unto the outſide of the blade, and a portion thereof runneth betwixt the fleſh and the skin. *d*. *d*, a veine from the *Cephalica* which attaineth unto the top of the ſhoulder, and is conſumed into the muſcle that elevateth or lifteth up the arme and into his skin. *e*, *e*. a ſmall veine from the *Cephalica* diſperſed through the skin and the muſcles of the arme. *f*. the diviſion of the *Cephalica* into three parts. *g*. the firſt branch runneth deep unto the muſcles which ariſe out of the externall Protuberation of the arme. *h*. the ſecond branch which goeth to make the *median* veine. *i*. *i*. the third branch running obliquely above the wand and the outſide of the arme. *k*. from this branch certaine circles are divided into the skin, the chiefe whereof is marked with *k*. *l*. the third branch at the wriſt which is joyned at *l*, with the branch of the *Baſilica* marked with *x*. *m*. the *Baſilica* which on the right hand is called *Hepatica*, on the left hand *Lienaris*. *n*. *o*. a branch of the *Baſilica* going to the heads of the muſcles of the cubit at *n*, and to the muſcles themſelves at *o*. *p*, a notable branch of the *Baſilica* running obliquely, and beſtowing ſurcles upon the muſcles that iſſue from the externall protuberation. This branch deſcendeth together with the fourth nerve. *q*, diviſion of the *Baſilica* into two branches, and that is noted with *q*, is ever accompanied with an arterye. *ſ*, a branch of this veine beſtowed upon the skin of the arme. *t*, a branch of the *Baſilica* which together with the branch of the *Cephalica* marked with *h*, makes the *mediana* or middle veine marked with *a*. *u*, a branch of the *Baſilica* going to the inner head of the arme. *xx*, a branch iſſuing out of the former that creepeth along unto the wriſt and toward the little finger conjoining it ſelfe with a branch of the *Cephalica*. *y*, A veine running out unto the skinne at the outſide of the cubit. Vpper *ζ*. A propagation iſſuing out of a branch of the *Baſilica* marked with *t*. Lower *z*. A branch of the *Baſilica* *x*, goeing to the in-ſide of the Arme. *α*. The *Median* or common veine, *β*, The partition of the Median veine above the wriſt: This diviſion ſhould have beene made above *γ*. *γ*. The Externall branch of the partition which goeth to the outſide of the head. δ, From which iſſueth a ſmall branch to the inſide. ι, The internall branch under ε, which toward the middle and the ring finger is eſpecially diſpoſed. φ, The veine of the thumbe diſperſed into the mountenet or hillock, which is conjoyned with the branch noted with δ. ζ, the trunke of the hollow veine from which iſſue branches unto the parts ſeated under the liver. η, The fatty veine called *Adipoſa ſiniſtra*, which goeth unto the fat of the kidnies. θ ι, The two Emulgents which leade wheyey bloud unto the kidnies. λ μ, the two ſpermaticall veines leading the matter of the ſeede unto the teſticles. *V*, the beginning of the bodden veſſell called *vas varicoſum*. ξ, the veines of the loynes called *Lumbares* which are ſent in the knots or knees to the rackebones, to the marrow of the backe, to the muſcles that lies upon the loines, and to the *Peritonæum*. ο, the bifurcation of the hollow veine into the Iliacke branches, which bifurcation is not unlike Λ. π, *Muſcula ſuperior*, a tranſverſe branch going to the muſcles of the *Abdomen*, and to the *Peritonæum*. ρ σ, the diviſion of the left Iliacke veine, into an inner branch at ρ, and an utter at σ. τ, *Muſcula media* the utter propagation of the branch ρ, diſtributed through the muſcles of the *coxa* and the skin of the buttockes. υ, An inner propagation of the ſame branch ρ which goeth unto the holes of the holy bone. φ, the veine called *Sacra*, which goeth to the upper holes of the holy bone. χ ψ, the veine *Hypogaſtrica* diſtributed to the bladder, to the muſcles of the fundament, and the neck of the womb. ω, A veine ariſing from the utter branch marked with σ which is ioyned with ſome branches of the internall veine, neare the holes or perforations of the ſhare bone. ει, A veine which when it hath paſſed the ſhare bone diſtributeth one branch into the cup of the *coxendix* and to the muſcles of that place. κ, Another ſmall branch which runneth under the skinne at the inſide of the thigh. χ, The congreſſe or meeting of the foreſaid veine, with a branch marked with char. 2. and diſtributed into the legge. Γ, The *Epigaſtricke* veine, a propagation of the utter branch σ perforating the *Peritonæum*, whereto as alſo to the muſcles of the *Abdomen*, and the skinne it offereth branches, the chiefe branch of this veine is joyned with the deſcending mammary above the navell at *M*. Δ, *Pudenda* an inner propagation of the branch σ, running overthwart unto the privities. Θ, *Saphæna* or the ancle veine or the inner branch of the crurall trunke, which creepeth through the inſide of the legge under the skinne unto the tops of the toes. Λ, the firſt interior propagation of the *Saphæna* offered to the groine. Ξ, The utter propagation thereof divided to the foreſide or outſide of the thigh. Π, The ſecond propagation of the *Saphæna* going to the firſt muſcle of the legge. Σ, The third propagation of the *Saphæna* going to the skinne of the whirlebone, and unto the hamme. Φ, The fourth propagation of the *Saphæna* diſperſing his muſcles forward and backward. Ψ, Branches from this unto the foreſide of the inner ankle, to the upper part of the foote, and to all the toes. Ω, *Iſchias minor* called alſo *muſcula interior*, the utter branch of the crurall trunke divided into the muſcles of the *coxendix*, and to the skinne of that place. 1,2, And this alſo may be called *muſcula*. 1, the exterior and leſſer which paſſeth into ſome muſcles of the legge: 2, the interior greater and deeper unto the muſcles of the thigh. 3,4. The veine called *Poplitea*, made of two crurall veines divided under the knee. 5, From this a ſurcle is reached upward unto the skinne of the thigh. 6. But the greater part runnes by the bent of the knee under the skinne as farre as the heele. 7, Alſo to the skinne of the outward ankle. 8, The veine called *Suralis* or calfe veine, becauſe it runneth unto the muſcles that make the calfe of the legge. 9, The diviſion of the Surall veine into an exterior trunke 9, and an interior 14. 10, 11, The diviſion of the exterior trunke under the knee into an externall branch, which along the brace attaineth unto the muſcles of the foot 11, and in internall. 12,13, 12,13, Which deſcending along the outſide of the legge to the upper part of the foote is cloven into divers branches, and in the backe of the foot mixeth it ſelfe with *Poplitea*, or the hamme veine 20. 14, The interior branch of the Surall veine which runneth into the backſide of the leg. 15, A branch hereof deſcending to the inſide of the heele and the great toe, and is divided into divers ſurcles. 17, *Iſchias maior* iſſuing out of the internall trunke at 14, and running through the muſcles of the calfe. 18, A propagation hereof derived unto the upper part of the foot, & affoording two ſurcles to every toe. 19, the remainder of the inner trunke 14, behind the inner ankle, approcheth to the bottome of the foote and is conſumed into all the toes. 20, the commixtion of the veine *Poplitea* with the ſurall or calſe-branch at 13.

Where the external Iugular veine may be fitly opened in inflammations of the parts of the mouth.

But when it arives to the baſis of the lower part of the head, it is divided into more branches, one wherof is carried to the muſcles of the bone *Hyois*, the *Larinx*, the tongue and the lower part of the tongue (in which place it is commonly opened in ſquinancies, and other inflammations of the mouth) and to the coate of the noſe. Another is carried to the *Dura mater*, paſſing on both ſides through a hole ſituate under the bone *maſtoides*, and beſides, aſcending to the bone of the backe part of the ſcull, it comes obliquely to the upper part of the ſuture *lambdoides*, where theſe branches meeting together, paſſe into the reduplication of the *Dura mater*, deviding the forepart of the braine, that ſo joined and united, they may make the *torcular*; the third aſcendent is diſtributed upon the backe part and *baſis* of the lower jaw, to the lippes, the ſides of the noſe, and the muſcles thereof: and in like manner to the greater corner of the eyes, to the forehead and other parts of the face, and at length by meeting together of many branches, it makes in the forehead the veine which is called *vena recta* or *vena frontis*, that is, the forehead veine. The fourth, aſcending by the glandules behind the eares, after it hath ſent forth many branches to them, is divided into two others, one whereof paſſing before, and the other behind the eare, are at length ſpent in the ſkinne of the head. The fifth and laſt wandring over all the lower part of the head, going to the backe part thereof, makes the *vena pupis*, which extended the length of the head by the ſagitall ſuture, at the length goeth ſo farre, that it meets with the *vena frontis*, which meeting is the cauſe, that a veine opened in the forehead, is good in griefes of the hinder parts of the head, and ſo on the contrary. But wee muſt obſerve that in the *Cranium* of ſome, the *vena pupis* by one or more manifeſt paſſages ſends ſome portion thereof to the inner part of the head, ſo that the *vena pupis* being opened may make revulſion of the matter which cauſeth the internall paines of the head.

Vena recta.

Vena pupis.

Chap. XIIII.

The diſtribution of the nerves, or ſinewes of the ſixth coniugation.

Three paire of nerves of the ſixt coniugation.

BEcauſe the Diſtribution of the arteries cannot be well ſhewed, unleſſe wee violate thoſe nerves which are carried over the Cheſt, therefore before we ſhew the diſtribution of the arteries, we will as briefely as we can, proſecute the diſtribution of theſe nerves.

Now the ſixth conjugation brings forth three paire of nerves; for paſſing out of the skull, as it comes downe to the Cheſt, it by the way ſends forth ſome branches to certaine muſcles of the necke, and to the three aſcendant muſcles of the *Larinx* on each ſide of the *Sternon* and upon the clavicles. Then the remainder deſcending into the Cheſt, is divided on each ſide into theſe three paire. The firſt paire makes the *Ramus coſtalis*. The ſecond, the *Ramus recurrens*. The third paire, the *Ramus ſtomachicus*. The *Ramus coſtalis*, or coſtall branch is ſo called, becauſe deſcending by the roots of the ribs, even to the holy bone, and joyning themſelves to theſe which proceede from each of the *Vertebra's* of the ſpine, they are carried to all the naturall parts.

Ramus Coſtalis

Recurrens.

The *Recurrens*, or recurrent is alſo called, becauſe as it were ſtarting up from the cheſt, it runs upwards againe, but theſe two Recurrent nerves doe not run backe from the ſame place; but the right from below the artery, called by ſome the axillarie, by others Subclavian, and the left from beneath the great artery, deſcending to the naturall parts. But each of them on each ſide aſcending along by the weazon, even to the *Larinx*, and then they inſinuate themſelves by the wings of the *Cartilago ſcutiformis*, and *Thyroydes* into the proper muſcles, which open and ſhut the *Larinx*.

An anatomical *Axiome*.

By how much the nerves are nearer the originall, to wit, the braine, or ſpinall marrow, they are by ſo much the ſofter. On the contrary, by how much they are further abſent from their originall, they are ſo much the harder and ſtronger, which is the reaſon, that Nature would have theſe recurrent nerves to runne backe againe upwards, that ſo they might be the ſtronger to performe the motions of the muſcles of the *Larinx*. But the *Stomachicus* or ſtomacke-branch is ſo called, becauſe it deſcends to the ſtomacke or ventricle. For this branch deſcending on both ſides by the ſides of the gullet, ſends many branches from it into the inner ſubſtance of the lungs, into the coate thereof, into the *Pericardium* and heart; and then comming into the upper orifice of the ſtomacke, it is ſpent in many branches, which folded after divers manners and wayes, chiefely makes that mouth or ſtomacke, which is the ſeate of the Animall apetite (as they terme it) and hunger, and the judger of things convenient or hurtfull for the ſtomacke. But from thence they are diverſely diſſeminated over all the body of the ventricle.

Why nature would have the vocall nerves recurrent.

Ramus ſtomachicus.

Moreover, the ſame branch ſends forth ſome ſmall branches to the liver and bladder of the gall, giving each part by the way, ſo much ſenſe as ſhould be ſufficiently neceſſary for it. Here you muſt note, the ſtomacke branch deſcends on each ſide one, knit to the gullet, and by the way they divide themſelves into two branches, each of which goes to the oppoſite ſide, that it may there joine it ſelfe to the nerve of that ſide. To which purpoſe the right is carried above the gullet, the left below it, ſo that theſe two ſtomaticke become foure, and againe theſe foure preſently become two.

CHAP. XV.

The diviſion of the Arteries.

THe Artery ariſing forth of the left ventricle of the heart, is preſently (the two Coronall arteries being firſt ſpred over the ſubſtance of the heart) divided into two unequall branches. The greater whereof deſcends to the lower parts, being diſtributed, as we formerly mentioned in the third Booke, and 22. Chapter. The leſſer aſcending to the upper parts, is againe divided into two other unequall branches, the leſſer of which aſcending towards the left ſide, ſends forth no artery from it, untill it arive at the firſt rib of the Cheſt, where it produces the ſubclavian artery, which is diſtributed after the manner following.

The left brench of the aſcendant artery is leſſe then the right.

The diſtribution of the left ſubclavian artery, into the,

First, it produces the intercoſtall, and by it imparts life to the three intercoſtall muſcles of the foure upper ribs, and to the neighbouring places.

1 *Intercoſtalis,*

Secondly, it brings forth the Mammillary branch, which is diſtributed as the Mammillary veine is.

2 *Mammaria.*

Thirdly, the *Cervicalis*, which aſcends along the necke by the tranſverſe productions to the *Dura mater*, being diſtributed as the *vena cervicalis* is.

3. *Cervicalis.*

Fourthly, paſſing out of the Cheſt, from the backe part of the Cheſt, it ſends forth the *muſculoſa*, whereby it gives life to the hinde muſcles of the necke, even to the backe part of the head.

4 *Muſculoſa.*

Fiftly, having wholy left the Cheſt, it ſends forth the two *Humerariæ*, or ſhoulder arteries, the one whereof goes to the muſcles of the hollow part of the ſhoulder blade, the other to the joint of the arme and the muſcles ſituate there, and the gibbous part of the ſhoulder blade.

5 *Humeraria duplex.*

Sixthly and laſtly, it produces the *Thoracica*, which alſo is twofold, for the one goes to the fore muſcles of the Cheſt, the other to the *Latsſimus*, as we ſaid of the veine, the remnant of it makes the *Axillaris* of that ſide.

6 *Theracica duplex.*

The other greater branch likewiſe aſcending by the right ſide, even to the firſt ribbe of the Cheſt, makes alſo the ſubclavian, of that ſide, which beſides thoſe diviſions it makes on this ſide, like thoſe of the left ſide, hath alſo another which makes the right and left *Carotides* or ſleepy arteries, which aſcending undivided with a nerve of the ſixth conjugation and the internal jugular veine, by the ſides of the *Aſpera Arteria* or windpipe, when they come to the *Pharinx*, they are divided on each ſide into two branches, the one internall, the other externall. The internall and greater

The diſtribution of the right ſubclavian Artery.

The *Carotides*, or ſleepy arteries.

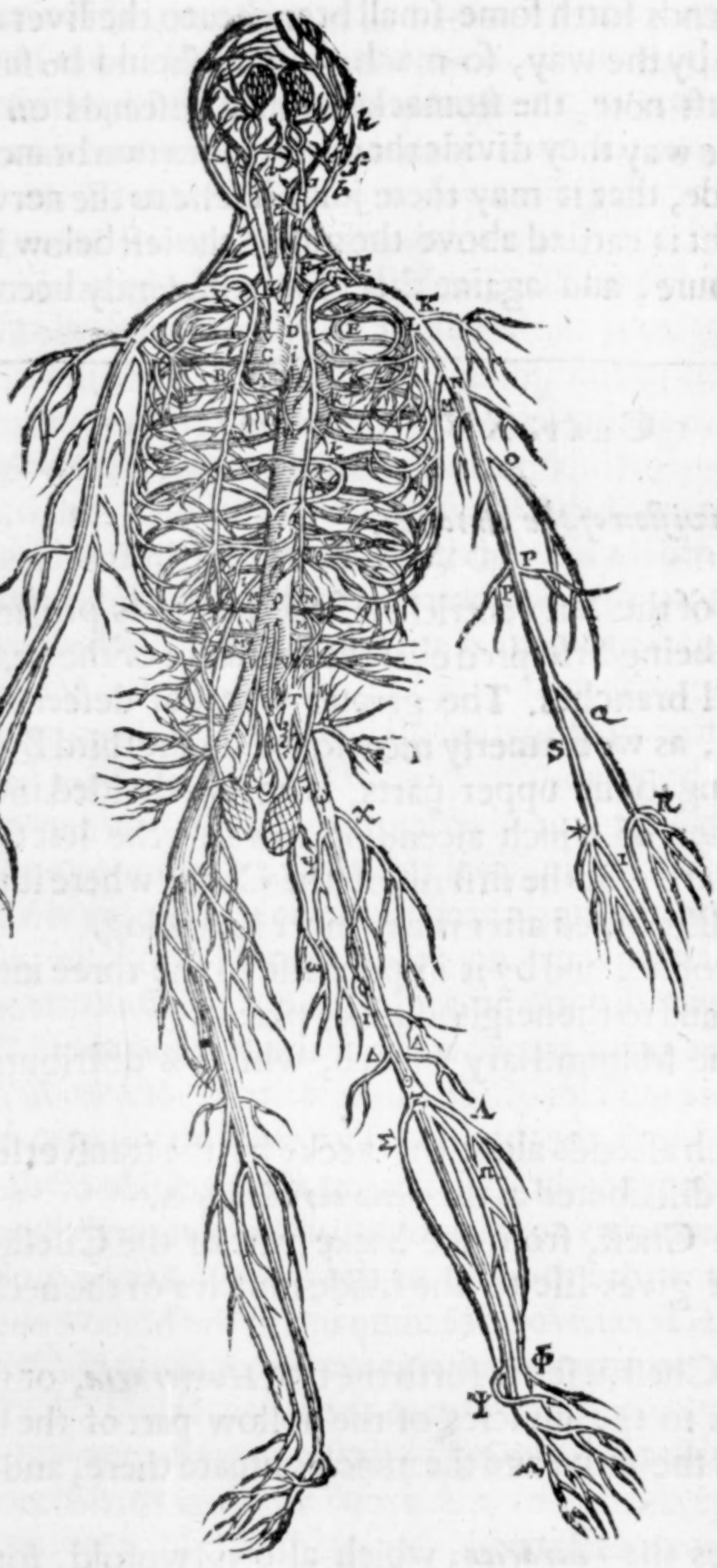
Their diviſion.

The diſtribution of the internall branch of the ſleepy arteries.

ter is ſent to the ***Pharinx***, ***Larinx*** and tongue; then entring into the head by the long hole, and the backe part of the upper jaw, it ſends many branches to the noſe, eyes, the inſide of the temporall muſcles and to the ***Craſſa meninx***, or ***Dura mater*** : the remainder of this branch going by the ſide holes of the ſame, that it might there make the ***Plexus admirabilis*** as we ſee. And then it is ſpent upon the baſis of the braine abundantly diffuſed over the ***tenuis meninx*** or ***Pia mater***, and the membrane or ***Plexus Choroides***. The externall or leſſer branch of the ſleepy arteries goes to the cheekes, the temples, and behind the eares; laſtly, it ſends a branch into the long muſcle of the necke, with which the internall Iugular veine inſinuates it ſelfe into the ***Dura mater***, entring by the hole of the nerves of the ſixth conjugation.

To what parts the externall branch of the ſleepy artery arrives.

The Figure of the Arteries.



A. The orifice of the great Arterie, or the beginning thereof, where it iſſueth out of the heart.

B, ***Coronaria***, ſo called, becauſe like a crowne it compaſſeth the baſis of the heart.

C. The diviſion of the great arterie into two trunkes V *i*.

D. the left ſubclavian climbing obliquely upward unto the ribs.

E. the upper intercoſtall artery, or a branch which beſtoweth foure propagations unto the diſtances of the lower rib.

F. the necke arterie which through the tranſverſe proceſſes of the rackebones of the necke, attaineth to the ſcull, beſtowing ſurcles unto the marrow and his neighbour muſcles.

G. the left Mammary artery running under the breaſtbone, and to the navell. It diſtributeth ſurcles to the ***Mediaſtinum***, the muſcles of the breſt, and of the ***Abdomen***.

H. ***Muſcula***, or a branch attaining to the backeward muſcles of the necke.

I. the ***Scapular*** arteries which goe unto the hollowneſſe of the blade, and of the muſcles that lie thereon.

K. ***Humeraria*** which climbeth over the top of the ſhoulder. L. ***Thoracica ſuperior***, ſprinkled unto the forward muſcles of the Cheſt. M. ***Thoracica inferior***, which paſſing along the ſides of the Cheſt, attaineth to the ***broad*** muſcles of the arme. N. the axillarie artery running out into the arme and affording branches unto the muſcles thereof. O. A branch reaching to the outſide of the cubit lying deepe. PP. Branches to the ioynt of the cubit with the arme. Q. the upper branch of the artery running along the ***Radius*** and offering ſurcles to the thumbe, the fore-finger and the middle finger. *k* A ſurcle creeping unto the outſide of the hand and led betwixt the firſt bone of the thumbe and that of the after-wriſt, ſupporteth the fore-finger where wee uſe to feele the pulſe. S. the lower branch of the artery running along the *Vlna* and communicating ſurcles to the little finger, the ring finger, and the middle finger. * A little branch unto the muſcles about the little finger. T. the diſtribution of the upper and lower branches into the hand and the fingers V. the trunke of the great artery aſcending to the *Iugulum*, and the diviſion thereof in that place into *X, Y, Z. X*, the left *Carotis* or ſleepy artery. *Y*, *Subclavian dextra* is divided into branches, as the right is divided. *Z. Carotis dextra*, called alſo *Apoplectica* and *Lithargica*. *a*, The diviſion of the left *Carotis* in the chops. *b*, the exterior branch of that diviſion going into the face, the temples, and behind the eares. *c*, the inner branch going to the throttle, the choppes and the tongue. *d*, the diviſion hereof at the baſis of the ſcull, into two branches which enter the *ſinus* of the *Dura mater*. *e*, A propagation of the branch *b*, unto the muſcles of the face. *f*, the diſtribution of the branch *b*, under the roote of the eare. *g*. the fore-branch hereof creeping up the temples. *h*. the backe branch running on the backeſide of the eare under the skinne. *i*, the trunke of the great artery, deſcending unto the ſpondels of the backe. *kkk*, the lower *Intercoſtall* arteries which goe unto the diſtances of the eight lower ribbes, from which are offered ſurcles to the marrow, and to the muſcles that grow to the backe and to the Cheſt. *l*, the artery of the midriffe called *Phronica* or *Diaphragmatica*. ζ, *Meſenterica Superior*, but you muſt note that above ζ, the trunke of the *Cœliacall* artery is taken away, leſt the multitude of letters in ſo ſmall a Table ſhould breed obſcuritie. η, θ, the right and left emulgents running from the *Aorta* or great artery unto the kidneies. ιι, κκ, the ſpermaticall arteries on either ſide going to the teſticles. λ, the lower Meſentericall artery on the left below μ, running eſpecially into the Collicke gut on that ſide. μμ, the arteries called *Lumbares* which runne overthwart and like knees, affording ſurcles to the muſcles that grow to the loynes, and to the *Peritonæum*. μ, the lower; *Muſcula ſuperior* running into the ſides of the *Abdomen* and the muſcles. νν, the byfurcation of the great artery into two *Iliacke* trunkes, and at the ſides, but ſomewhat inward are branches which make thoſe that are called *Sacræ*. T, the diviſion of the left *Iliacke* trunke into an inner branch at ξ and an utter at φ. ξ, the inner *Iliacke* branch. ο, *Muſcula inferior*, the utter propagation of the inner branch going unto the muſcles which cover the branch bone and the *Coxendix*. ϖ, *Hypogaſtrica*, the inner propagation of the inner branch going to the bladder, the yard and the necke of the womb. ρρ, the umbilicall artery. ς, the remainder of the branch ξ, aſſuming an addition from the utter branch neere φ, and ſo falling through the hole of the ſhare bone into the legge. τ, *Epigaſtrica*, it aſcendeth upward unto the right muſcle of the *Abdomen*, and about the navell is ioyned with the mammary artery. υ, *Pudenda*, it creepeth overthwart the ſhare bone. φ, the *Crurall* trunke without the *Peritonæum*. χ, *Muſcula cruralis exterior*, going into the fore muſcles of the thigh. ψ, *Muſcula cruralis interior*, going unto the muſcles of the inſide of the thigh. ω, The conjunction of this arterie with the branches. Γ, *Poplitæi*, going to the muſcles on the backſide of the thigh. ΔΔ, which communicateth ſmall branches to the ioynt of the knee, and the muſcles that make the calfe of the legge. Θ, the diviſion of the *Crurall* artery under the hamme into three branches. Λ, *Tibiæa exterior*, it accompanieth the brace-bone, and is conſumed into the muſcles. Ξ the chiefe part of the *crural* artery. Σ, the upper & backer *Tibiæa*. ΠΦ, the lower and backer *Tibiæa* running unto the upper ſide of the foote at Φ. Ψ, A propagation of the crurall artery going to the inner and upper ſide of the foote, and ſprinkling a branch unto the ankle. Ω, A propagation unto the lower part of the foote which affordeth ſurcles to each toe.

But we muſt note that there be more veines in a mans body, than arteries, and beſides that the veines are farre thicker. For there is no need for preſerving the native heat in the parts themſelves, either of ſo many, or ſo large inſtruments of that kinde. Therefore you may often finde veines without arteries, but never arteries without veines.

But we underſtand that an artery is a companion to a vein, not only when it touches it, or adheres to it by common membranes, as uſually it happens; but alſo when it is appointed together with the veine for the uſe of the ſame part.

CHAP. XVI.

Of the Thymus.

What the *Thymus* is. The uſe. The magnitude.

THe *Thymus* is a glandule of a ſoft, rare, and ſpongeous ſubſtance, of large bigneſſe, ſituate in the furtheſt and higheſt part of the Cheſt, amongſt the diviſions of the ſubclavian or Iugular veines and arteries, as yet contained in the Cheſt, for this uſe; that it might ſerve theſe veſſels for a defence againſt the bony hardneſſe of the Cheſt, and beſides, that as it were by this prop or ſtay, the diſtributions of theſe veſſels might become the ſtronger; for ſo we ſee that nature hath provided for others, eſpecially ſuch as are the more noble and worthy. This glandule appeares very large in beaſts and young men, but in ſuch as have attained to full growth it is much leſſe, and ſcarſe to be ſeene.

CHAP. XVII.

Of the Aſpera Arteria, *the rough Arterie or Weazon.*

The ſubſtance.

THe *Aſpera Arteria* or Weazon ſeeing it is the inſtrument of voice and reſpiration, is of a griſtly, ligamentous, and wholy various ſubſtance. For if it had beene one rough, and continued body with the *Larinx* or throttle, it could be neither dilated, nor compreſſed; opened, nor ſhut, neither could it order the voice according to our deſire.

Compoſure.

It is compoſed of veines from the internall Iugular, of arteries ariſing from the *Carotides*, and of nerves proceeding from the Recurrent branch, of a double membrane, of which the externall comes from the *Peritonæum*; the internall, which is the ſtronger and woven with right fibers, from the inner coate of the mouth, the which is common with the inner coate of the *æſophagus* or gullet. And alſo it conſiſts of round griſtles, yet not drawne into a perfect circle, compoſed in manner of a channell, and mutually joined together in order, by the ligaments that proceede from their ſides and ends.

Why the back part of the weazon is ligamentous. Why the fore-part is griſtlely.

Theſe ſame ligaments perfect the remnant of the circle of this *Aſpera Arteria*, on that part next the gullet; which is thought to be done to this end; that that ſoftneſſe of a ligament, might then give place, when wee ſwallow harder and greater gobbets of meate. Of the two ſorts of ligaments which are annexed to the griſtles of the weazon, ſome tie and faſten together the rings or circles, which give meanes both to it, and theſe circles to be drawne out in length; otherſome bring theſe griſtles into a perfect circle, which alſo yeeld them meanes of dilatation. Theſe ligaments cover the inner ſuperficies, but the griſtles are placed without, to reſiſt the incurſion of externall injuries. But wee muſt note, that by this communion of the inner coates of the weazon and gullet, wee reape this benefit in the commodiouſneſſe of the action, that one of theſe parts being depreſſed, the other is lifted up, like a rope running in a wheele or pully. For thus whileſt the gullet is depreſt to ſwallow any thing, the weazon is lifted up; and on the contrary when the ſtomacke riſes up in vomiting, the weazon is depreſt.

The number and ſite. The diviſion of the weazon through the Lobes of the Lungs.

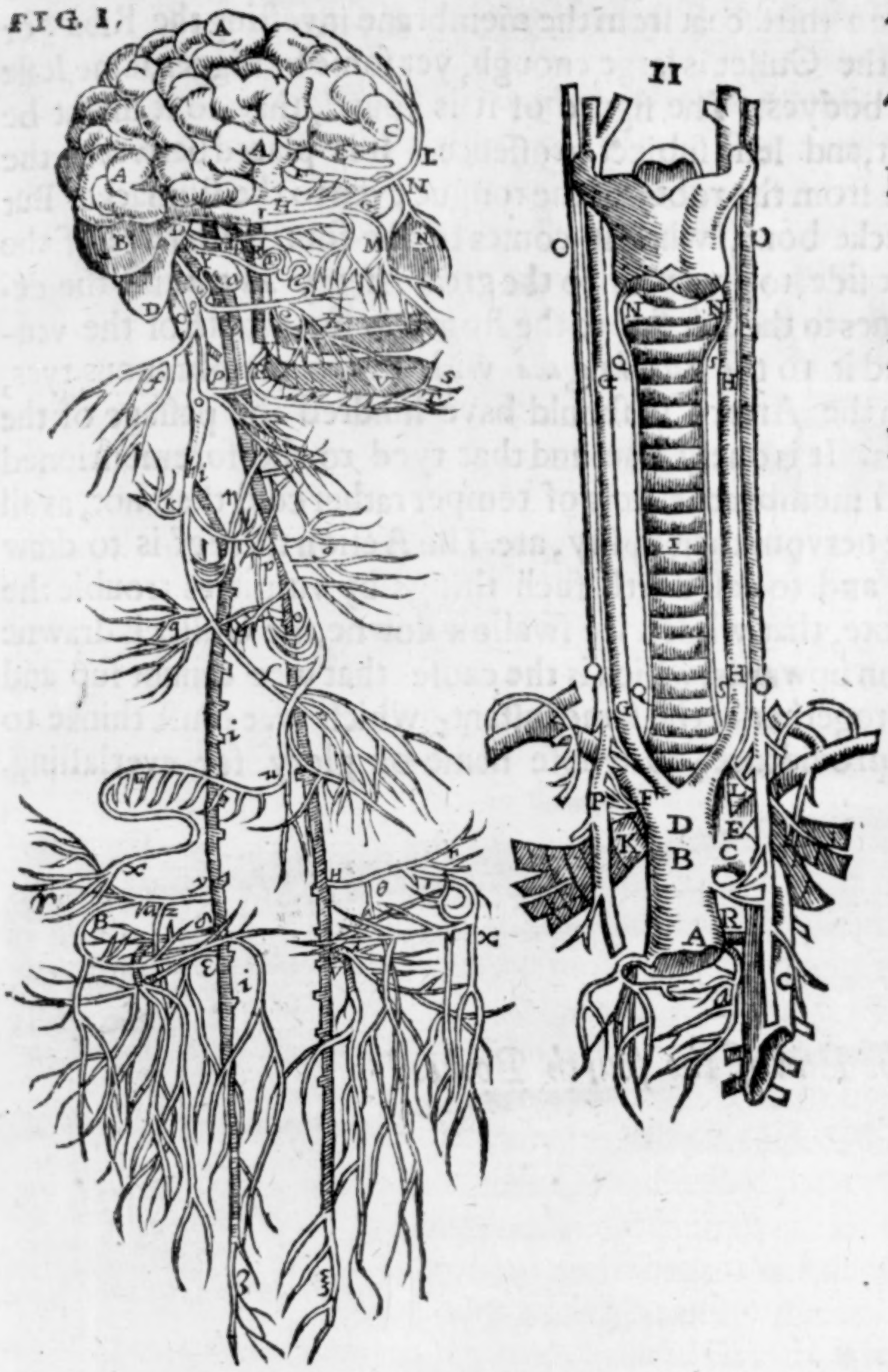
It is onely one, and that ſeated betweene the *Larinx* (from which it takes its beginning) and the lunges in which it ends; firſt dividing it ſelfe into two large branches, the right and the left, and beſides each of theſe entring into the ſubſtance of the lungs, is againe divided into two others; to each of the Lobes one; and to conclude, theſe be ſubdivided into infinite others, through the ſubſtance of the Lobes.

All theſe branches are griſtlely even to the ends. They are ſituate betweene the ends of the *Arteria venoſa*, and the *Vena arterioſa*, that the entrance of the aire into the heart by the *arteria venoſa* might be ſpeedier, as alſo the paſſage out of the vapour, by the *vena arterioſa*. Thus it hath connexion with theſe in the ends, or utmoſt parts thereof, but by the other parts compaſſing it, with the members from whence it takes them. The temperament thereof is cold and drie. The action is to carry the aire to, and vapours from the lungs; that by dilating, but this by preſſing the griſtles together.

The temper and action.

The Figure of the Aſpera Arteria *or Weazon.*

FIG. I.



A. The orifice of the great artery cut from the heart, *aa.* the coronall arteries of the heart.

B. C. D. the diviſion of the great artery into two trunkes, the deſcending C. the aſcending D.

E. the left axillarie, or ſubclavian arterie.

F. the right axillarie or ſubclavian artery.

G. the right *Carotis* or ſleepie artery.

H. the left *Carotis.*

I. the trunke of the rough artery or weazon.

K.L. The diviſion of the rough artery into two branches, of which the right goes into the right, and the left into the left ſide of the lungs; which branches are againe ſubdivided into many other.

M. The head of the Rough Artery called the *Larinx* or *Throttle.*

N.N. Certaine Glandules or Kernells at the root of it.

OO. The right and left Nerves of the ſixth and ſeventh conjugation. P. A Revolution of ſmall branches of the right nerve, to the right *Axillary* Artery. QQ. The right Recurrent Nerve. R. A revolution of ſmall branches of the left nerve unto the deſcending trunke of the great Artery. SS. The left Recurrent Nerve.

CHAP. XVIII.

Of the Gullet.

The ſubſtance

THe OEſophagus, or Gullet which is the paſſage of the meat and drinke, is of a middle ſubſtance betweene the fleſh and ſinewes, becauſe it conſiſts of one nervous membrane and another fleſhy. The nervous is placed the innermoſt, and is continued to the inner Coate of the mouth even to the Lipps (whereby it comes to paſſe,) that the Lipps tremble in diſeaſes which are ready to be judged by a criticall vomiting and to the inner part of the *Aſpera Arteria*; it conſiſts of right Fibers for the attraction of the meat, which we ſee is ſometimes ſo quicke and forcible in hungry people, that they have ſcarſe time to chaw it, before they find it, to be pluckt downe, as it were with a hand. The fleſhy Coate placed without is woven with tranſverſe fibers, to haſten

Attractive force thereof.

The compoſure.

the going of the meat into the ſtomacke, and for expulſion in vomiting and breaking of winde. Theſe two coats are continued with the two coats of the ſtomacke, and have the like ſite. Beſides, the Gullet hath theſe parts compoſing it, as a veine from the Gate and Hollow aſcendent veine, a nerve from the ſixt conjugation, an Artery from that which creepes alongſt the bottome of the ſtomacke with the *vena Gaſtrica*, or elſe from the Arteryes aſcending the hollow part therof; but alſo beſides all theſe veſſels it may have a third coat from the membrane inveſting the Ribs, or *Pleura*.

The magnitude.
The figure.
Site.

The magnitude of the Gullet is large enough, yet ſome be bigger, ſome leſſe according to the variety of bodyes. The figure of it is round, that ſo it might be more large to ſwallow meat, and leſſe ſubject to offence. It is placed betweene the backe bone and the weazon from the roots of the tongue even to the ſtomacke. But as it diſcends alongſt the backe bone, when it comes to the fourth *Vertebra* of the Cheſt, it turnes to the right ſide, to give way to the great Artery *Aorta* and the deſcendent Artery, then it turnes to the left ſide to the ſtomacke, or mouth of the ventricle. Nature hath faſtened it to the *Diaphragma* with ſtrong membranous tyes, leſt that, if it had laine upon the Artery it ſhould have hindred the paſſage of the vitall ſpirit to the lower parts. It is onely one and that tyed to the forementioned parts, both by its veſſels and membranes.

Temper and action.

It is of temper rather cold than hot, as all thoſe parts, which are more nervous than fleſhy, are. The Action thereof is to draw and carry downe the meat, and to caſt forth ſuch things by vomit as trouble the ſtomacke.

Why we cannot ſup and blow at one time.

Here you muſt note, that whileſt we ſwallow downe, the Gullet is drawne downewards, and the weazon upwards, which is the cauſe that wee cannot ſup and blow, ſwallow and breathe together at the ſame inſtant; which wee muſt thinke to happen by Gods ſingular providence; to whoſe name be glory for everlaſting, Amen.

The End of the fourth Booke.

THE

THE FIFTH BOOKE OF THE ANIMALL parts contained in the Head.

CHAP. I.

A Generall deſcription of the Head.

HAving hitherto declared two generall parts of mans body, that is, the Naturall and vitall, it is now fit to betake our ſelves to the laſt, that is, the Animall, beginning with the head.

Whreſore we will firſt define the head, then divide it into its parts; thirdly deſcribe each of theſe parts; fourthly demonſtrate them after the order they offer themſelves to our ſight in diſſection.

The head therefore is the ſeat of the ſenſes, the Pallace and habitation of reaſon and wiſedome, from whence as from a fountaine infinite actions and commodities ariſe. It is ſeated above the reſt of the body, that the Animall ſpirit from thence, as from a tower, may governe and moderate the whole body, and performe all actions according to the præſcript of nature. By the head we underſtand all that which is contained from the Crowne of the head to the firſt *vertebra* of the neck.

What the head is.

Why ſeated in the higheſt place.

The beſt figure of the head is round, lightly flatted on each ſide, *extuberating* ſomething to the fore and hinde part thereof. For from hence is taken an argument of the goodneſſe of the ſenſes; on the contrary, thoſe which are exactly round, or acuminate, and ſharp towards the top, are not thought good. The head is devided into the face, forehead, temples, the forepart, the crowne and hinde part.

The figure.

The diviſion thereof.

By the face we underſtand, whatſoever is contained between the Eye-browes and the lower part of the chin. By the forehead, all the ſpace from the eye-browes even to the Coronall ſuture. By the temples, whatſoever is hollowed from the leſſer Corner of the eye, even to the eares. By the forepart of the head, whatſoever runnes in length from the top of the forehead, or the Coronall ſuture, even to the ſuture *lambdoides*, and on each ſide to the *Oſſa petroſa*, the ſtony bones, or ſcaly ſutures. By the Crowne we ſignifie a certaine point exquiſitely in the midſt of the Sagittall ſuture, which is ſufficiently knowne. By the *Occiput* or hindepart of the head, that which is terminated by the ſuture *lambdoides*, and the firſt *vertebra* of the neck.

Of all theſe parts there be ſome ſimple, ſome compound, beſides ſome are containing

The cōtaining parts of the head.

taining, ſome contained. Of the containing ſome are common to all the parts of the head, as the ſkinne, the fleſhy pannicle and *pericranium*; others are proper to certaine parts, as the fleſhy panicle to the neck, face, forehead, and skin covering the *Cranium*, the common coat of the muſcles to the fat and face; The ſkull and both the *Meninges* to the braine.

The parts conteined.

The parts contained are the ſubſtance of the braine, the foure ventricules, and the bodyes contained in them, the nerves, the mamillary proceſſes; the *Plexus Choroides* or *Rete Admirabile*, the *Glandula Baſilaris*, and others of which we will ſpeak hereafter.

Wee muſt now ſpeak of the containing parts beginning with the ſkinne; for the order of teaching requires that we take our *Exordium* from the more ſimple, but firſt we will ſay ſome thing of the haires.

What the haire is.

The uſe thereof.

The haire is nothing els than an excrement generated and formed of the more groſſe and terrene portion of the ſuperfluities of the third concoction, which could not be waſted by inſenſible tranſpiration. The benefite of it is, that conſuming the groſſe and fuliginous or ſooty excrements of the braine it becomes a cover and ornament for the head.

This haire of the head and eye-browes have their originall from the firſt conformation of the infant in the wombe, the reſt of the haires of the body ariſe and grow forth as the body growes and becomes more dry, of which ſort are the haires which cover the Chin, armeholes, groines and other parts of our bodyes.

Chap. II.

Of the muſculous skinne of the Head, (commonly called the hairy ſcalpe) and of the Pericranium.

What the hairy ſcalpe is.
Its connexion.

* Our Author with *Fallopius* and *Laurentius* confoundes the *pericranium* and *perioſtium*; but *Veſalius Bauhinus* and *Bartholinus* diſtinguiſh them making the *pericranium* thin and ſoft, and the *perioſtium* moſt thin and nervous, and of moſt exquiſite ſenſe.

THe skinne which covers the Scull, and is covered with the haire, is farre more fleſhy, thick, hard and dry than any other part of the body, eſpecially which wants haire. The skinne hath almoſt the like condition of quality as thoſe parts have, which it doth ſimply cover, but is as it were loſt in them, or growne into one with them, as in the lips and forehead with the fleſhy pannicle, wherefore it is there called muſculous; in other places it adheres to the griſtles, as on the ſides of the noſethrilles and corners of the Eyes, whereupon it is there called griſtlely.

Why the wounds thereof muſt not be neglected.

It hath connexion with the *Pericranium* becauſe joined to it, it receives nerves from the firſt and ſecond *vertebra* of the necke, and from the third conjugation of the braine which are diſſeminated through all its ſubſtance, whereby it comes to paſſe, that the wounds, contuſions, and impoſtumes that happen in or upon this ſkinne, are not to be neglected.

The *Pericranium* and *perioſtium* of the ſame nature.
Whence all the membranes proceed.

The * *Pericranium* (but I ſuppoſe it ſhould be the *Perioſtium*) is a moſt thin membrane, which next and immediately covers all the bones of the body, and this on the head is called by a peculiar name the *Pericranium* by reaſon of the excellency of the *Cranium* or ſkull, in other bones it is tearmed the *Perioſtium*: And as the *Pericranium* takes its originall from the *Craſſa meninx* propagating it ſelfe by certaine ſtrings or threds ſent forth by the ſutures and holes of the ſkull, ſo all other membranes of the body have their originall either from this *Pericranium*, or the *Craſſa meninx*, ſending forth their productions, as well by the holes or paſſages of the head, as by theſe of the ſpinall marrow or back bone it ſelfe, even to the Holy bone.

Why when any membranous part is hurt in any part of the body, the head is affected by conſent.

Of which this is an argument, for in what part ſoever of the body a membrane is hurt, preſently the hurt or ſenſe thereof comes to the *Craſſa meninx*. For ſo thoſe who have but their litle Toe hurt when they ſneeſe, or cough, perceive an increaſe of their paine, by the paſſage thereof to the braine.

The uſe of the *Pericranium*.

The vſe of this *Pericranium* is to cover the ſkull, and to give notice of things hurtfull, by the power of the quick ſenſe which it is endued withall, and the *Perioſtium* doth the like in other bones. Beſides it ſuſtaines and faſtens by the ſutures the *Craſſa meninx* to the ſkull; leaſt it ſhould fall by reaſon of its weight upon the *Pia mater*, and ſo hurt it; and hinder the pulſation of the braine and arteryes that are plenteouſly ſpread through both the *Meninges*. Wherefore the *Pericranium* hath moſt ſtrait connexion with the *Craſſa meninx*, becauſe it takes the originall from thence.

We muſt thinke the ſame of the other membranes of the body, which thing is very notable in the ſolution of the continuity of the membranes.

Chap. III.

Of the Sutures.

THe Sutures do ſew or faſten together the bones of the ſkull; theſe be 5 in number. Three are true and legitimate, two falſe and ſpurious. The Coronal, the firſt of the true ſutures, is ſeated in the forepart of the head, deſcending downewards overtwhart the forepart of the head to the midſt of the temples; it is ſo called, becauſe *Corollæ*, that is, wreaths, crownes or garlands, are ſet upon that place.

Their uſe and number.

The ſecond is called the *Sagittalis*, or right ſuture, as that which running through the crowne devides the head into two equall parts, as with a ſtraigth line, running the length of it from the Coronall to the *Lambdoides* or hinde ſuture.

But this third ſuture *Lambdoides*, is ſo called becauſe it repreſents this Capitall greek letter Lambda, Λ. You muſt underſtand this deſcription of the ſutures, not as alwaies but as for the greater part to be thus. For there be ſome ſkulls that want the foremoſt ſuture, otherſome the hind, & ſomtimes ſuch as have none of the true ſutures, but only the falſe & ſpurious. But alſo you ſhal ſomtimes find the Sagittal to run to the noſe.

Some ſculls want Sutures.

And oft times there be three or foure ſutures in the backe part of the head, ſo that indeed the number of the ſutures is not certaine. Which alſo we find obſerved by *Cornelius Celſus*, where he writes, that *Hippocrates* was deceived by the ſutures by chance, for that he conjectured that the bones of the backe part of the head, were broken, becauſe his Probe thruſt to the roughnes of the ſecond ſuture *Lambdoides*, ſtaied as at a Cleft made in the bone by a ſtroake.

Celſ. lib. 8. Cap. 4.

The other two are called the falſe, ſtony and ſcaly ſutures, by reaſon they are made by a ſcaly conjunction of the bones, but not by a toothed ſaw or combe-like connexion. But if any aske, why the head conſiſts not of one bone, that ſo it might be the ſtronger: I anſwere it is, that ſo it might be the ſafer both from internall and externall injuries. For the ſcull being as it were the tunnel of the chymney of this humane fabrick, to which all the ſmoky vapours of the whole body aſcend, if it had beene compoſed of one bone, theſe vapours ſhould have had no paſſage fourth.

Why the ſcull conſiſts of divers bones.

Wherefore the groſſer vapours paſſe away by the ſutures, but the more ſubtile by the pores of the ſcull; ſome have their ſutures very open, but others on the contrary very cloſe.

Therefore nature hath otherwiſe compendiouſly provided for ſuch as want ſutures; For it hath made one or two holes, ſome two fingers bredth from the *Lambdoides*, through which the *Vena pupis* enters into the ſkull, and they are of that largenes that you may put a points tagge into them, that ſo the vapours may have free paſſage forth, otherwiſe there would be danger of death; thus nature hath beene careful to provide for man againſt internall injuries; and in like manner againſt externall, for it hath made the head to conſiſt of diverſe bones, that when one bone is broken the other may be ſafe, the violence of the ſtroak being ſtayed in the diviſion of the bones.

In what bodies and by what meanes the *Vena pupis* ſometimes enters into the parts within the ſcull.

Whereby you may know, that if the ſkull chance to be broken in the oppoſite ſide to that which received the blow, that it happens either by reaſon of the defect of Sutures, or elſe becauſe they are unperfect, and too firmely cloſed; otherwiſe it is unpoſſible ſuch fractures ſhould happen by reaſon of the ſeparation of the bones, which breakes the violence of the blow that it can goe no further.

In what men one part of the head being ſtriken, the oppoſite is broken.

And certainely as it is rare to find a ſkull without Sutures, ſo it is rare to find ſuch kinde of fractures. Therfore Chirurgions muſt diligently obſerve the Sutures and ſite of them, leaſt they bee deceived and take them for fractures, or unawares apply a

Why we muſt not apply a Trepan to the Sutures.

Trepan to them, whence by breaking the veines, arteryes and nervous fibers by which the internall parts communicate with the externall, there may enſue increaſe of paine, a violent defluxion of blood upon the *Craſſa meninx*, and the falling thereof upon the braine, (the fibers being broken by which it ſtuck to the *Pericranium*) and ſo conſequently a deadly interception of the pulſation of the Braine.

CHAP. IIII.

Of the Cranium, *or Skull.*

What the *Cranium* or ſcull is.

THe *Cranium*, or Skull covering the braine like an Helmet, is compoſed and conſiſts of ſeaven bones, of which ſome are more denſe, thick and hard than other ſome. The Firſt is the *Os occipitis*, or Nowle bone ſeated in the back part of the head, more hard and thicke than the reſt, becauſe we want hands and eyes behind, whereby we may keep or ſave our ſelves from falling.

Why the nowle bone is harder than the reſt.

This bone is circumſcribed, or bounded by the ſuture *Lambdoides*, and the * *Os baſilare*. The eminencies and as it were heads of this bone are received into the firſt *vertebra*; for upon this the head is turned forwards and backwards, by the force of foureteene muſcles and ſtrong ligaments, which firmely tye theſe heads of the Nowle bone in the cavityes of this firſt *vertebra*.

* My Author meanes by the *Os Baſilare* in this place the wedge bone: but ſome Anatomiſts make it a *Synonima* of this *Os occipitis*.

The fore-head bone, next to the nowle bone is harder than the reſt.

The Second bone of the ſkull is in the forepart, and is called the *Os coronale* or *Os frontis* the forehead bone, it hath the ſecond place in ſtrength and thickneſſe. It is bounded by the Coronal ſuture, and the ends of the wedgebone: in this forehead bone there is often found a great cavity under the upper part of the eye-browes, filled with a glutinous, groſſe, viſcide and white matter or ſubſtance, which is thought to helpe to elaborate the aire for the ſenſe of ſmelling.

A Cavity to be obſerved in the forehead bone.

Chirurgions muſt take ſpeciall notice of this cavity, becauſe when the head chances to be broken in that place, it may happen, that the fracture exceeds not the firſt table; wherefore they being ignorant of this cavity, and moved with a falſe perſwaſion that they ſee the braine, they may thinke the bone wholy broken, and to preſſe the *Meninges*, whereupon they will dilate the wound, apply a Trepan and other inſtruments to lift up the ſecond table of the bone, without any need at all, and with the manifeſt danger of the life of the patient.

Oſſa parietalia and *bregmatis*.

The third and fourth bones of the Skull are the *Oſſa parietalia*, or *Bregmatis*, having the third place of denſity and thicknes; although this denſity and thicknes be different in diverſe places of them. For on the upper part of the head, or crowne, (where that ſubſtance turnes not to a bone in children untill they have all their teeth, ſo that it feeles ſoft in touching, and through it you may feele the beating of the braine) theſe bones are very tender, ſo that oft times, they are no thicker than ones naile, that ſo the moiſt and vapourous excrements of the braine, ſhut up where the greater portion of the braine reſides, may have a freer paſſage by the Braines *Diaſtole* and *Syſtole*. Theſe two ſquare bones are bounded above with the Sagittall ſuture, below with the ſcaly, on the forepart with the coronall, and on the hinde part with the *Lambdoides*.

Oſſa petroſa, or the ſcaly bones

The fiſth and ſixth bone of the ſkull are the two *Oſſa petroſa* ſtony or ſcaly bones which are next to the former in ſtrength. They are bounded with the falſe or baſtard Suture, and with part of the *Lambdoides*, and wedgebone.

Os Sphenoides, or the wedge-bone.

The ſeaventh is the *Os ſphenoides*, *baſilare* or *Cuneiforme* that is, the wedgebone. It is called *Baſilare*, becauſe it is as it were the Baſis of the head. To this the reſt of the bones of the head are fitly faſtened in their places. This bone is bounded on each ſide with the bones of the forehead, the ſtony bones, and bones of the Nowle and pallate. The figure repreſents a Batte, and its proceſſes her wings.

Os Ethmoides or *cribroſum*.

There is beſides theſe another bone at the Baſis of the forehead bone, into which the mamillary proceſſes end, the Greekes call it ἠθμοειδὲς, the Latines *Cribroſum* and *Spongioſum*, the Spongy bone, becauſe it hath many holes in it not perforated in a direct paſſage, as in a ſive, but winding and anfractuous, that the aire ſhould not by the force of attraction preſently leap or aſcend into the braine, and affect it with its qualityes, before it be elaborated by its lingring in the way. There are beſides alſo ſixe other little bones lying hid in the ſtony bones, at the hole, or Auditory paſſage; on each ſide three, that is to ſay, the *Incus* or Anvill, the *Malleolus* or Hammer, and the *Stapes* or ſtirrop, becauſe in their figure they repreſent theſe three things; the uſe of theſe we will declare hereafter.

The three bones of the Auditory paſſage.

But alſo in ſome skuls there are found ſome diviſions of bones, as it were collected fragments to the bigneſſe almoſt of ones thumbe, furniſhed and diſtinguiſhed by their proper commiſſures, or ſutures, which thing is very fit to be known to a Chyrurgion in the uſe of a Trepan.

Verily he may give a conjecture hereof, whileſt he ſeparates the ***Pericranium*** from the skull, for the *pericranium* is with greater difficulty pluckt away from the ſutures, becauſe the *Craſſa meninx* hath ſtraiter connexion therewith by his nervous fibers ſent forth in ſuch places. The Skuls in women are ſofter and thinner than in men, and in children more than in women, and in young men more then in men of a middle age. Alſo the Æthiopians or Blackamoores, as alſo all the people inhabiting to the South, have their ſculles more hard and compoſed with fewer ſutures.

By what meanes a Chirurgion may conjecture, that there are extraordinary ſutures in certaine places of the ſcull.

The ſculls of ſuch as inhabite the Southren countries are more hard and denſe.

Therefore as it is written by ***Hippocrates***, ſuch as have their Skulls the ſofter, the Symptomes in fractures are more dangerous and to be feared in them. But the skull by how much the ſofter it is, by ſo much it more eaſily and readily yeilds to the perforating Trepan. Moreover in ſome skuls, there bee bunches ſtanding out beſides nature, made either round, or cornered, which the Chirurgion muſt obſerve for two cauſes; the firſt is for the better conſideration of a blow or fracture. For in theſe bunches, or knots, the ſolution of the continuity cannot be, if it ſeeme to be ſtretched in length, but that the wound muſt penetrate to the inner parts. For in a round body there can be no long wound; but it muſt be deepe, by the weapon forced the deeper; becauſe as a round body touches a plaine but onely *inpuncto* in a prick or point, ſo what-ſo-ever falls only lightly or ſuperficially upon it, onely touches a point thereof. But on the contrary a long wound muſt be upon a plaine ſurface, which may be but only ſuperficiall.

We muſt obſerve the extuberancies beſides nature which are in ſome ſculls.

A nother cauſe is, becauſe ſuch bunches change the figure and ſite of the Sutures. And the Chirurgion muſt note that the skuls hath two tables, in the midſt whereof the *Diploe* is; which is a ſpongy ſubſtance into which many veines and arteryes & a certaine fleſhyneſſe are inſerted, that the skull ſhould not be ſo heavy, and that it might have within it ſelfe proviſion for the life thereof; and laſtly that there might be freer paſſage out for the fuliginous vapours of the braine.

The ſite and ſubſtance of the *Diploe*.

The upper table is thicker, denſer, ſtronger and ſmoother than the lower. For this as it is the ſlenderer, ſo it is the more unequall, that it may give place to the internall veines and arteryes (which make a manifeſt impreſſion into the ſecond table on the inſide thereof) from which branches enter into the skull by the holes which containe the eyes. Which thing faſtens the ***Craſſa meninx*** to the skull, and is therefore very worthy to be obſerved.

For in great contuſions when no fracture or fiſſure appeares in the skull by reaſon of the great concuſſion or ſhaking of the braine, theſe veſſels are often broken, whence happens a flux of blood between the skull and membranes, and laſtly death. But it is fit the Chirurgion take good heed to the tender and ſoft ſubſtance of the *Diploe*, that when he comes to it, having paſſed the firſt table, he may carefully uſe his Trepan, leaſt by leaning too hard, it run in too violently, and hurt the membranes lying underneath it, whence convulſion and death would follow. To which danger I have found a remedy, by the happy invention of a Trepan, as I will hereafter more at large declare in handeling the wounds of the head.

There may be a deadly rupture of the veſſells of the braine without any fracture of the Scull.

Caution to be had in the uſe of the Trepan

Chap. V.

Of the Meninges, *that is, the two membranes called* Dura Mater *and* Pia Mater.

Why the bone *Ethmoides* is perforated.

The *Craſſa meninx* is one of the firſt and principall membranes of the body; it goes forth by the ſutures and the holes of the nerves that proceed out of the skull; and it paſſes forth by the bone *Ethmoides* perforated for that purpoſe, to carry ſmels to the Braine, and purge it of excrementitious humors. This ſame *Craſſa meninx* inveſts the inner coate of the Noſe; alſo it paſſes forth of the great hole through which the ſpinall marrow paſſes, veſted with this *Craſſa meninx*, with all the nerves and membranes. For which cauſe, if any membrane in the whole body be hurt, by reaſon of that continuation which it hath with the *Meninges*, it ſtraight communicates the hurt to the head by conſent.

The conſiſtence of the *Craſſa meninx*

The *Craſſa meninx* is thicker and harder than all other membranes in the body; whereupon it hath got the name of the *Dura mater*, beſides alſo it begirts, produces, and defends the other membranes.

The uſe.

The uſe of it is to involue all the braine, and to keepe it when it is dilated, that it be not hurt by the hardneſſe of the Scull. For the courſe of nature is ſuch, that it alwayes places ſome third thing of a middle nature, betwixt two contraryes. Alſo the *Craſſa meninx*, yeelds another commodity, which is, that it carryes the veines and arteryes entring the Scull for a long ſpace. For they inſinuate themſelves into that part, where the duplicated or folded *Meninges* ſeparate the braine from the *Cerebellum*, and ſo from thence they are led by the ſides of the *Cerebellum*, untill they come, as it were, to the toppe thereof; where being united they inſinuate themſelves into that other part of the *Craſſa meninx*, where in like manner being duplicated and doubled, it parts the braine at the top into the right and left; Theſe united veines run in a direct paſſage even to the fore-head, after the manner of the Sagittall ſuture; They have called this paſſage of the mutually infolded veines, the *Torcular*, or Preſſe, becauſe the blood which nouriſhes the braine is preſſed and drops from thence by the infinite mouthes of theſe ſmall veines. Therefore alſo here is another uſe of the *Craſſa meninx*, to diſtinguiſh the braine by its duplication, being it thruſts it ſelfe deepe into its body, into two parts, the fore and hind, and preſently to ſeparate the ſame into the right and left; that one part being hurt, the other may remaine ſafe and ſound, performing its duty to the creature, as we ſee in ſome that have the Palſey. *Columbus* obſerved that this *Meninx* was double, and verily I have found it true by my owne ſight.

What the *Torcular* is.

One part of the braine being hurt the other keepes the creature alive.

The conſiſtence of the *Pia mater*.

The other *Meninx* or membrane of the braine, called *Pia mater*, is moſt ſlender interchaſed with divers veines and arteryes, for its owne and the braines nouriſhment and life. This doth not onely involve the Braine, as the *Craſſa meninx* doth, but alſo more deeply penetrates into the anfractuous paſſages thereof, that it may every where joyne and bind it to it ſelfe, not eaſily to be drawne from thence, by many ſmall fibers whereby it deſcends even to the cavities of the ventricles thereof. Wherefore you muſt ſee it abſolutely in the ſite as wee have mentioned, and not plucke it away unleſſe with the ſubſtance of the Braine.

The ſenſe of the *Meninges*.

Theſe membranes when they are hurt or afflicted, cauſe greivous and moſt bitter torment and paine; wherefore I dare ſay, that theſe membranes are rather the authors of ſenſe than the braine it ſelfe, becauſe in diſeaſes of the Braine, as in the Lethargie, the party affected is troubled with litle or no ſenſe of paine.

CHAP. VI.

Of the Braine.

NOw followeth the Braine, the beginning of the nerves and voluntary motion, the inſtrument of the firſt and principall faculty of the Soule, that is, the Animall and Rationall. Man hath this part in greater plenty then any other Creature, for it almoſt fills the whole Scull. But if it ſhould have filled it all, the Braine could not be moved, that is, dilated and contracted in the Scull. It is of a cold and moiſt Temperature. The laudible temper of the braine is knowne by the integrity and perfection of the internall and externall ſenſes, the indifferency of ſleepe and waking, the Maturity or ripeneſſe of judgment, and conſtancy of opinions, from which, unleſſe it meet with better and more probable, it is not eaſie to be moved.

What the braine is.

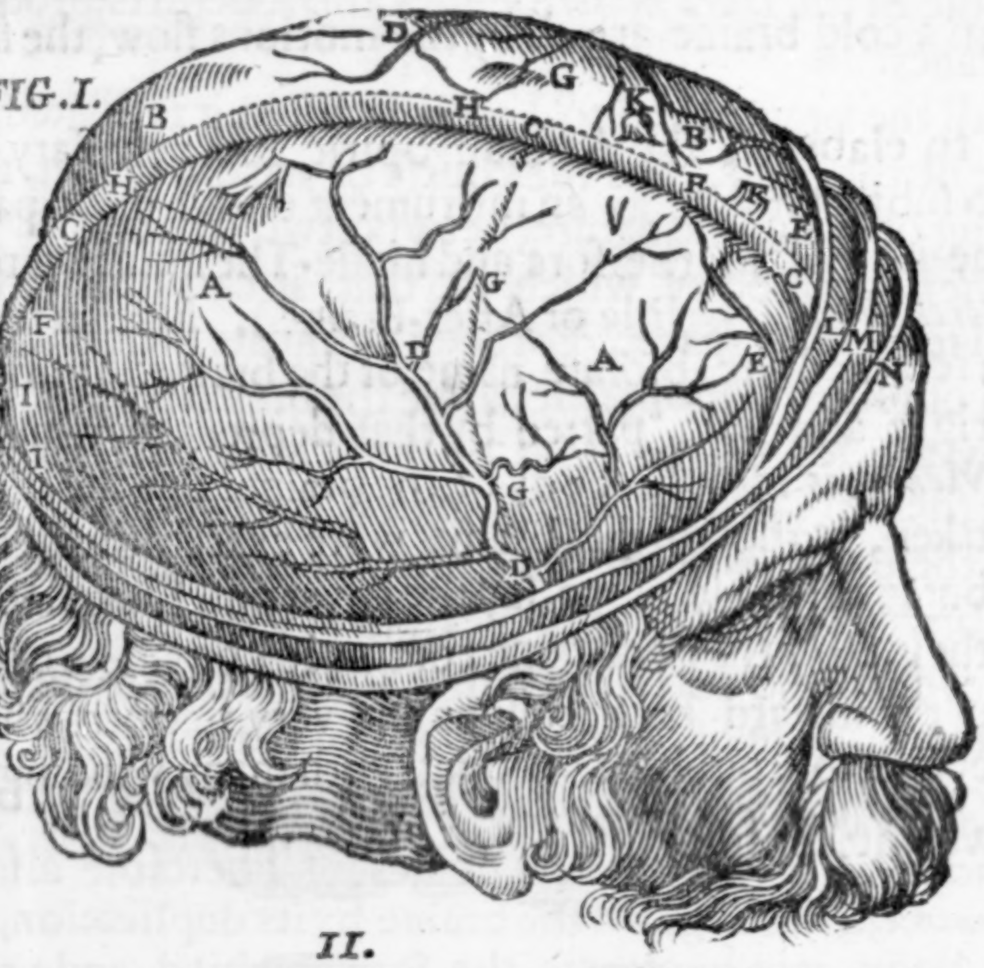
The quantity

Temper,

The firſt figure of the head, as it appeares when the ſcull is taken away.

The ſecond figure ſhewing the Braine, the ſcull and Dura mater *being taken off.*

FIG. I.



AA, BB. The *Dura meninx* or thicke membrane.

CCC. The third *Sinus* of this membrane.

DD. The courſe of the veines as they runne through the membrane, or the ſecond veine of the braine.

EE. The firſt veine of the braine.

FFF. Certaine ſmal veines which perforate the ſcull and reach to the *pericranium* or Scull-skin.

GGG. Fibres of the *Dura meninx* paſſing through the Coronall Suture, which fibres make the *Pericranium*.

HH. fibres paſſing through the ſagittall Suture.

II. Others paſſing through the Lambdall Suture.

K, A knub which uſeth to grow to the *Sinus* of the Scull.

L. A cavitie in the forehead bone.

M. The Scull.

N. The *Pericranium* or Scull-skinne.

II.

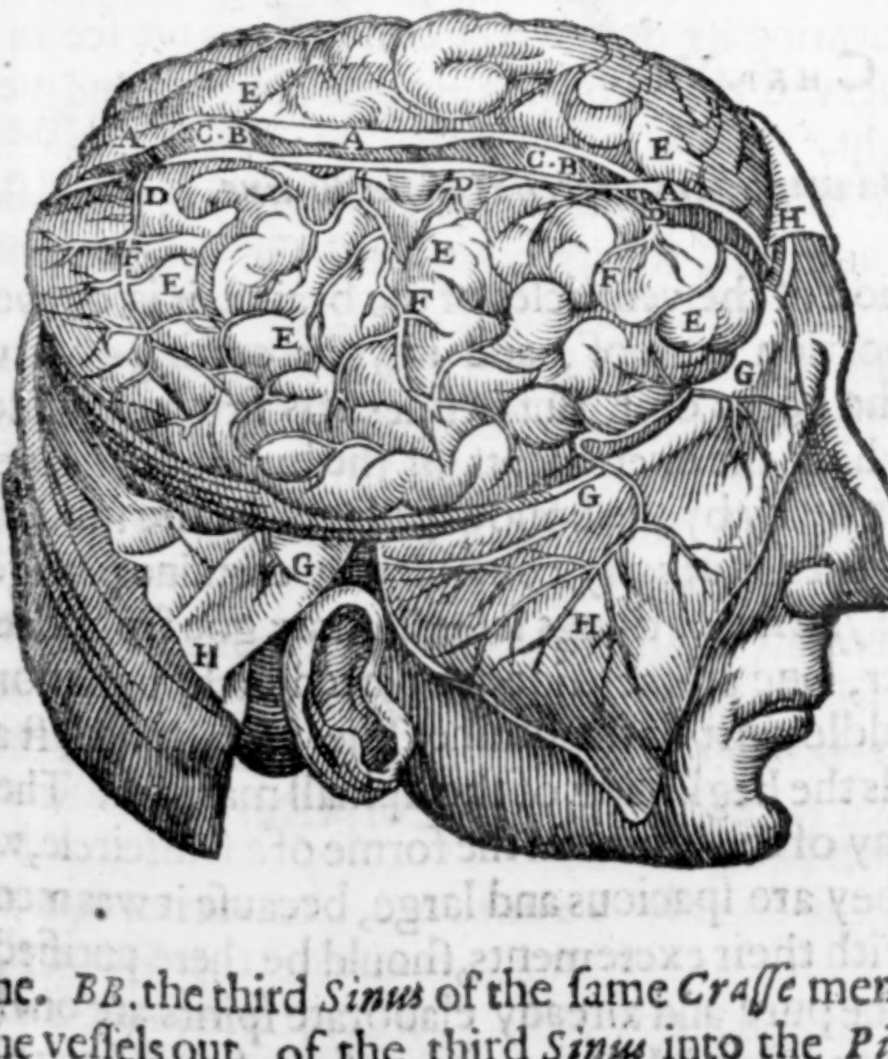


Fig. 2.

AAA. A part of the *Craſſe meninx* dividing the braine. **BB.** the third *Sinus* of the ſame *Craſſe* membrane opened. **CC.** the beginning of the veſſels out of the third *Sinus* into the *Pia mater*. **DDD.** the propagation of branches of theſe veſſels. **EEE.** the *Pia mater* or thin *meninx* immediately compaſſing

ſing the braine. *FFF.* Certaine veſſels running through the convolutions or branches of the braine. *GGG.* Certaine branches of veines running through the ſides of the *dura meninx.* *HHH.* The thicke membrane reflected downeward.

You ſhall know the braine is more hott, by the quickneſſe of the ſenſes and motions of the body, by ſhortneſſe of ſleepe, the ſuddaine conceiving of opinions and change of them, by the ſlippery and failing memory, and laſtly by eaſily receiving hurt from hot things, as the Sunne and Fire. Such as have a cold braine, are ſlow to learning, and to conceive other things, but they do not eaſily put away their once conceived opinions. They have ſlow motion to action, and are ſleepy. Thoſe who have a dry braine, are alſo ſlow to learne; for you ſhall not eaſily imprint any thing in dry bodyes, but they are moſt conſtant reteiners of thoſe things they have once learned; alſo the motions of their bodyes are quicke and nimble. Thoſe who have a moiſt braine doe eaſily learne, but have an ill memory, for with like facility as they admit the ſpecies of things and imprint them in their minds, doe they ſuffer them to ſlide and ſlip out of it againe. So Clay doth eaſily admit what Character or impreſſion ſoever you will, but the parts of this Clay which eaſily gave way to this impreſſion, going together againe, mixes, obliterates and confounds the ſame. Therefore the ſenſes proceeding from a cold braine are dull, the motions ſlow, the ſleepe profound.

The Action. — The Action of the braine is to elaborate the Animall Spirit and neceſſary ſenſe ſerving the whole body, and to ſubject it ſelfe as an inſtrument to the principall faculties, as to reaſon. Number. — The braine is twofold, the fore and hinde. The hinde by reaſon of its ſmallneſſe is called the *Cerebellum*, (the litle or After-braine). But the fore by reaſon of its magnitude hath retained the abſolute name of the braine. Againe this fore-braine is two-fold, the right and left, parted by that depreſſion, which wee formerly mentioned, of the *Meninges* into the body of the braine. But this diviſion is not to be here ſo abſolutely taken, as though the Braine were exactly divided and ſeparated into ſo many parts, but in the ſenſe, as we ſay the Liver and Lungs are divided a pretty way, whereas at their *Baſis* they have one continued body. The outward ſurface of the Braine is ſoft, but the inward hard, callous and very ſmooth; when on the contrary, the outward appeares indented and unequall with many windings, and creſted as it were with many wormelike foldings.

Chap. VII.

Of the ventricles and mamillary proceſſes of the Braine.

The ſubſtance of the braine is porous and ſweats forth blood. — For the eaſie demonſtration of the ventricles of the braine, it is convenient you cut away a large portion thereof, and in your cutting obſerve the blood ſweating out of the pores of it. But beſides, it is fit you conſider the ſpongy ſubſtance by which the excrements of the braine are heaped up, to be preſently ſtrained out, and ſent away by the hollow paſſage. The foure ventricles thereof. — In the ſubſtance of the braine you muſt obſerve 4 ventricles, mutually conjoined by certaine paſſages, by which the ſpirits endued with the *ſpecies* of things ſenſible, may goe from one into another. The firſt and two greater, one on each ſide are placed in the upper braine. The third is under them in the middle part of the braine. The fourth and laſt at the fore ſide of the *Cerebellum*, towards the beginning of the ſpinall marrow. The magnitude of the upper ventricles of the braine. — The two formoſt are extended the length way of the braine in the forme of a ſemicircle, whoſe hornes looke or bend outwards. They are ſpacious and large, becauſe it was meet the Spirits contained there together with their excrements, ſhould be there purified and clenſed; but in other ventricles, the pure and already elaborate ſpirits are onely received. Theſe ventricles are white and ſmooth in their inner ſuperficies; but that on each ſide they have an exuberancy at the midſt of the ſemicircle, ſcituate at the baſis of the Pillar of the middle ventricle towards the noſe under the *Septum lucidum* or cleere partition, ſevering or parting in ſunder theſe two ventricles.

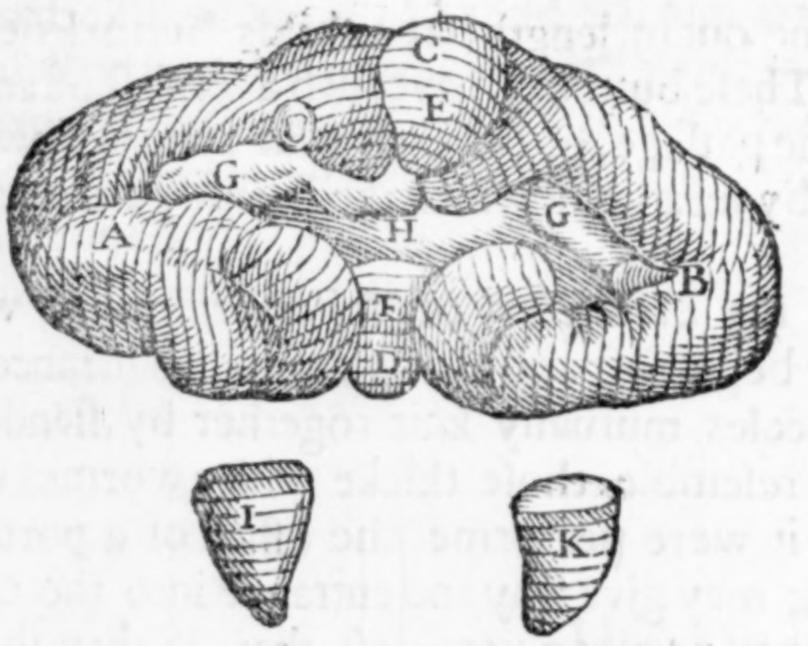
The *Septum Lucidum*,

This *Septum lucidum*, or cleare or thin partition, is nothing elſe than a portion of the braine indifferently ſolide, but very cleere, that ſo through this partition the animall ſpirits contained in theſe two ventricles may mutually paſſe and bee communicated, and yet no other groſſer ſubſtance may peirce the thin denſity thereof.

Why the Palſie of one ſide is not preſently communicated to the other.

Wherefore it is not to be feared, that the water contained in one of the ventricles may paſſe to the other through this partitiō, as I have oft times obſerved to the great admiration of the ſpectators in the dead bodyes of ſuch as dyed of the Palſy, in which I have found the ventricle of that ſide which was taken with the palſy much dilated, according to the quantity of the water contained therein, the other being either wholy empty and without any; or certainly no fuller than in any other, dead through any other occaſion. For ſome affirme that there is a certaine kind of wateriſh moiſture alwaies to be found in the ventricles, which may be made by the condenſation of the Animall ſpirits by the force of the deadly cold. But theſe two firſt ventricles of the braine goe into one common paſſage, as both the bellowes of a fornace, whereby the ſpirit inſtructed with the ſpecies of things goes into the under, or middle ventricle from the former. In theſe ſame firſt ventricles the *Plexus Choroides* is to be conſidered, and in like manner the paſſage by which the groſſer excrements are driven or ſent into the pituitary Glandule.

The Third Figure repreſents the Cerebellum *with the wormy proceſſes ſeparated from it.*



AB, The right and left part of the After-braine. *CD*, The *anterior* and *poſterior* regions of the middle part of the After braine. *E*, The *anterior* wormy proceſſe. *F*, The *poſterior* wormy proceſſe. *GG*, In this place the After-braine did grow to the ſpinall marrow. *H*, The cavity in the ſpinall marrow maketh the forth ventricle. *IK*. The *anterior* and *poſterior* proceſſes of the braine, called *vermi-formes* or the wormy proceſſes.

The *Plexus Choroides*.

This *Plexus Choroides* is nothing elſe, but a production of the *Pia mater* diverſly folded with the mutuall implication of veines and arterys woven in the forme of a net. Theſe veſſels are of magnitude and capacity ſufficient, both to yeild life and nouriſhment to that particle to which they are faſtened, as alſo for the generation of the Animall ſpirits, as which take fit matter from the veines ſtretched fourth into this ſame *Plexus*, the hinde artery and veine *Torcular*; and alſo from the aire entring into the braine by the mamillary proceſſes. But the mamillary proceſſes are certaine common waies for conveyance of the aire and ſmels into the braine, and carrying of excrements from the braine.

The *Proceſſus Mammillares*.

For thus in them who have the Catarrhe and *Coriza* or poſe, neither the aire, nor ſmels can penetrate into the braine; whence frequent ſneeſings enſue, the braine ſtrongly moving it ſelfe to the expulſion of that which is troubleſome to it. But of the excrements of the braine, whether bred there, or proceeding from ſome other part, ſome are of a fumide and vaporous nature which breathe inſenſibly through the Sutures of the ſkull; Others are groſſe and viſcide, of which a great part is expelled by both theſe productions,or through each of them. For thus in the Poſe you may ſee ſome who have one of their noſthrils ſtopt, the other running, and ſome who have both obſtructed. The moſt proper benefit of the two firſt ventricles of the braine is to entertaine the Phantaſie as in a convenient ſeat and habitation, ſeeing the minde there eſtimates and diſpoſes in order the ſpecies of things brought in from the externall ſenſes,that ſo it may receive a true judgement of them from reaſon which reſides in the middle ventricle.

The uſe of the upper ventricles of the Braine.

The ſeat of the third ventricle of the braine. The parts to be conſidered in it.

The third ventricle is ſeated betweene the hindermoſt extremityes of the former ventricles, and the laſt ventricle of the *Cerebellum*. In this ſixe parts preſent themſelves to our conſideration, that is the *Pſalloides* or Arch, the *Conarium*, or pine Glandule,the Buttockes, wormelike productions, the Baſon and paſſage which is from this middle into the laſt and hindemoſt ventricle. The *Pſalloides* or arch is nothing els, but the cover of the middle ventricle, reſembling a roofe borne up with three ſtayes or pillars,the one whereof is extended to the noſe under the *Septum lucidum*, the two other on each ſide one,looke towards the backe part of the braine. This is the reaſon of this figure which is outwardly convexe and inwardly concave, to wit, that there might be free ſpace for that motion which the Animall ſpirit inwardly produces, and beſides that it might more eaſily ſuſtaine the burden of the braine lying upon it. For an arched figure is the moſt convenient of all other to ſuſtaine a waight.

What the *fornix* or Arch is,and the uſe thereof.

What the *Conarium* or pine Glandule is.

The *Conarium* or Pine glandule, is a ſmall Glandule of the ſame ſubſtance with the braine, round and ſomewhat long, like a pine Apple, from whence it hath the name; this Glandule is ſeated over againſt a ſmall hole which deſcends to the loweſt ventricle. It hath this uſe, to ſtrengthen the diviſion of the veſſells led thither with the production of the *Pia mater* for the generation of the animall ſpirits, and the life and nouriſhment of the braine.

What the *Nates* or Buttocks are.

The *Nates* or Buttocks are ſubjected or placed under this Glandule, that is,bodies of a ſolid and white ſubſtance drawne out in length like a childs buttocks,eſpecially in beaſts, and cheifly in a ſheepe. Theſe buttocks have ſuch a ſolid ſubſtance, that ſo they may keepe open and free the paſſage, or channell that runnes downe from the middle to the lower ventricle, by meanes of which the Braine participates with the *Cerebellum*.

What the worme is.

The worme is a production of the *Cerebellum* or After-braine, to wit a portion of the ſame being in the top or beginning and as it were in the entrance thereof, being like many litle circles or wheeles mutually knit together by ſlender membranes; and it is ſo called becauſe it reſembles thoſe thicke white wormes which are found in rotten wood. It doth as it were performe the office of a porter to the formerly mentioned paſſage, that it may give way and entrance into the *Cerebellum* to a neceſſary quantity of ſpirits, when need requires; leſt that, if they ſhould ruſh with a ſuddaine violence into the *Cerebellum*, they might confound the imprinted notions of things to be remembred.

Here the *Pelvis* or Baſon is confounded with the Tunnell.

The *Pelvis* or Baſon is a paſſage appointed for the carrying away of the groſſe excrements by the palate, and is ſo called becauſe it hath the ſimilitude and uſe of a baſon or Tunnell:it deſcends from the third ventricle into the Glandule which is ſeated betweene the proceſſes of the wedge-bone called the ſaddle thereof,as you may perceive by putting in a ſpatherne. Now there remaines the laſt of the ſixe parts propoſed to our conſideration in the third ventricle, that is,the Channell or paſſage running from this third ventricle into the fourth, for the uſe formerly mentioned.

The Channell from the third into the fourth ventricle.

This Channell deſcending in its originall from the Baſon,goes from thence under the buttocks into the laſt ventricle, the *Meninges* being perforated; which that you may ſhew,it is fit you put the end of a ſpatherne through it. The benefit of the third ventricle is; that it may be as a Tribunall or judgment ſeate to the Reaſoning faculty,when the minde will draw concluſions from things ſeene.

The fourth ventricle of the Braine.

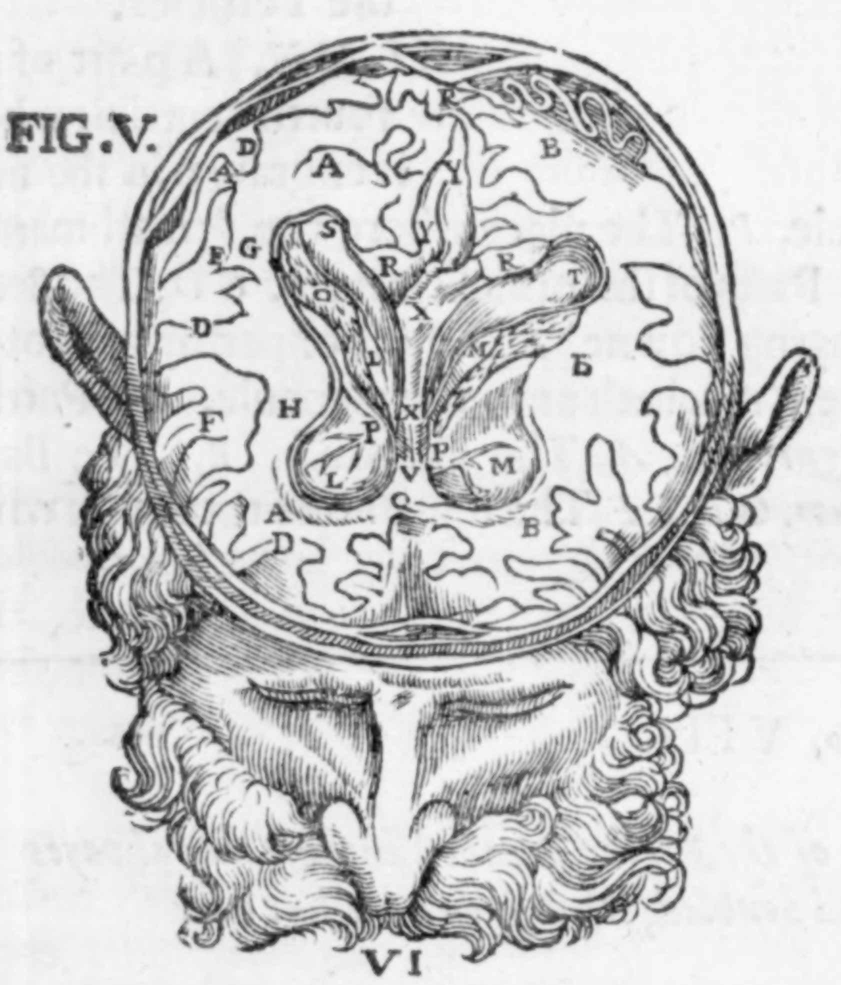
The fourth ventricle is ſeated in the place we formerly mentioned; it is leſſe than the reſt, but more ſolide; leſſe as that which was not to receive the ſpirit before it was purified,and clenſed from all impurities; but more ſolid that it might containe it the ſafer. The uſe therof is,to be as a Treaſury and ſtore-houſe of the opinion, and judgments which reaſon ſhall decree, that when neede requires, wee may fetch and draw them from thence as laid up in ſtore. I know *Galen*, and the Greeke Phyſitions have not ſo diſtinguiſhed in places the three fore-mentioned facultyes; but have written, that they all are all over confuſed through the whole ſubſtance of the braine, which opinion alſo *Fernelius* in his *Pathologia* hath renewed. Yet I had rather follow this opinion, as commonly received and celebrated by the Arabian Phyſitions.

The uſe of the Mammillary proceſſes.

The Mammillary proceſſes are the inſtruments and paſſages of ſmelling, being of the ſame ſubſtance with the braine, and like nerves, which runne out from the hinde hornes of the upper or foremoſt ventricles of the braine to the *Ethmoides* and ſpongy bones of the noſe, that hence they may receive the divers kinds of ſmells, and carry them into the Braine. But although they be like nerves, yet they are not accounted nerves becauſe they go not out of the ſcull.

The Fourth and Fiſt figures of the Braine.

FIG.V.



VI

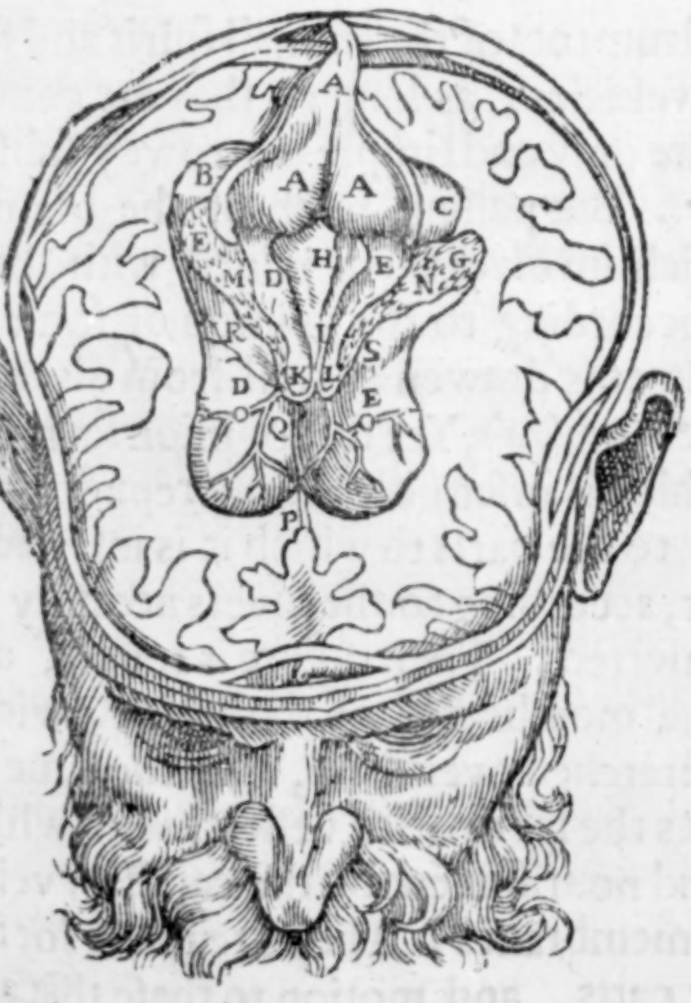


Figure 5.

RRR, The lower *ſuperficies* of the callous body reflected.

STV, The *tri angular* ſurface of the *Fornix* or Arch.

XX, The lower part of the partition of the ventricles contin uated with the Arch.

YY, The upper part of the partition continued with the callous body.

Figure 6.

AAA, The lower ſurface of the Arch.

BC, Two corners of the Arch, by which it is continuated with the ventricles.

DE, The right and left ventricles.

FG, Arteries climbing up from the ſleepy arteries through the lower ſide of the ventricles for the forming of that complication of veſſels which is called *Plexus choroides*.

H, A veſſell iſſuing out of the fourth *Sinus* under the Arch, and paſſing into the third venticle.

IKL, The diviſion of this veſſell, a part whereof goeth to the right venticle at *K*, and another to the left at *L*.

MN, The *Plexus choroides* made of the artery *FG*, and the veſſell *H*.

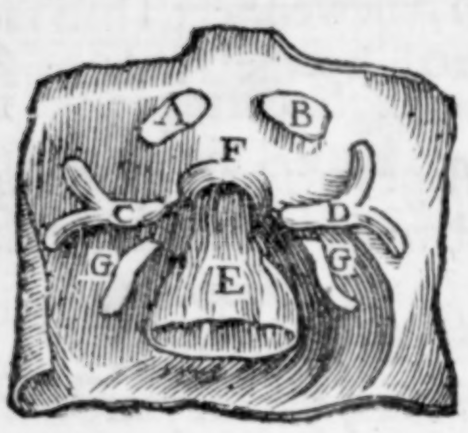
OO, Small veines paſſing thorough the ventricles of the braine, produced from the veſſels *K* and *L*.

P, Other veines ariſing from the ſame, diſperſed without the ventricles into the *Piamater*. *Q*. A paſſage from the third ventricle unto the *Baſon or Tunnell*.

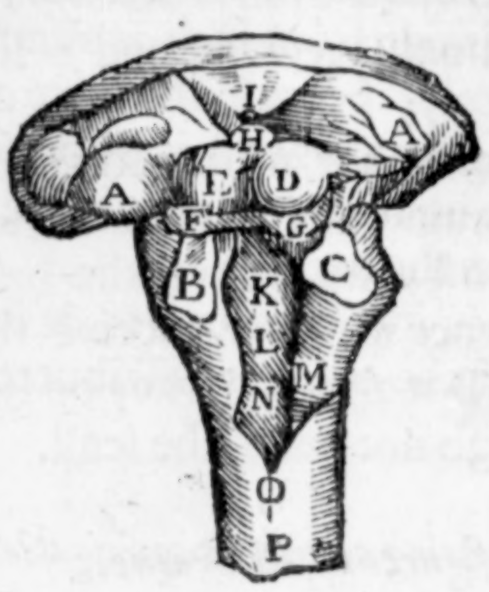
RS, Canales or *Sinus* graven or furrowed in the ſubſtance of the ventricles, in which the phlegme is led along to the orifice of the foreſaid paſſage marked with *Q*.

The Sixth figure of the Braine.

XI.



X.



XII.

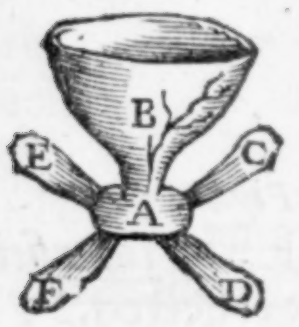


Figure 10. *A A*, Parts of the ſpinall marrow cut from the braine. *BC*, The places where this marrow did grow unto the braine. *DE*, The Teſticles. *FG*, The buttocks, *H*. the pine-glandule. From *I* to *K*, A part of the third ventricle going to the fourth, under the Teſticles. *KLMN*, A part of the fourth ventricle which is engraven in the marrow. *O*, The top of the fourth venticle. *P*, The place where the ſpinall marrow goeth out of the skull. *Figure* 11. *AB*. Parts of the opticke nerves. *CD*, The ſleepy arteries. *E*, The Baſon or Tunnell hanging downe. *F*, A hole or perforation of the *dura meninx*, through which the Tunnell reacheth unto the glandule. *GG*, Parts of the ſecond conjugation of ſinnewes. *Figure* 12. *A*, The Glandule. *B*, The Baſon or Tunnell called *Peluis* or *Infundibulum*. *CDEF*, The foure holes thorough which the phlegmaticke excrement iſſueth.

Chap. VIII.

Of the 7. conjugations of the Nerves of the Braine, ſo called, becauſe they alwayes ſhew the Nerves conjugated and doubled, that, is on each ſide one.

What a Nerve or Sinew is.

Its ſubſtance.

Whether the nerves have a third membrane from the Ligaments of the *Vertebra's*.

The nerves are the waies and inſtruments of the animall ſpirit and facultyes of which thoſe ſpirits are the vehicles, as long as they are contained in the braine; they conſiſt of the only and ſimple marrowey ſubſtance of the braine; or ſpinall marrow. But paſſing forth of the braine, they have another membranous ſubſtance which involves them joined with them from the two membranes of the braine; and according to the opinion of ſome Anatomiſts, they have alſo a third from the ligaments drawen as well from divers others, as from theſe by which they are tyed to the *Vertebra's*; Yet this opinion ſeemes abſurd to me, ſeeing ſuch a membrane, as that which is inſenſible, wholy repugnes the condition of a nerve, which is to give ſenſe to the parts to which it is inſerted.

Their magnitude.

Their figure.

Their uſe.

Their number

The magnitude of the nerves is different, according to the divers neceſſity of ſenſe incident to the parts into which they are inſerted. Their figure is round, and long like to a conduit pipe to carry water in; the membranes of the braine, with which the nerves are covered, being dilated and ſtretched over them, after the ſame manner that the proceſſes of the *Peritonæum* involves the ſpermatick veſſels, with which they goe downe to the Teſticles, and take life and nouriſhment by the capillary veines and arteryes, which deſcend to them with the membranes. They are made for this uſe, that they may impart ſenſe to the ſenſitive parts, and motion to theſe that are fit to be moved. All the nerves deſcend from the braine either mediatly, or immediately; their Number is ſeaven and thirty paire, or conjugations, whereof ſeaven have their originall immediately from the braine, the other thirty from the ſpinall marrow.

The firſt conjugation of nerves.

The firſt conjugation of the nerves of the braine is thicker than all the reſt, and goes to the eyes, to carry the viſive ſpirit to them. Theſe ariſeing from diverſe parts of the braine, in the middle way before they goe out of the skull meet together croſſewiſe like the Iron of a Mill (which is faſtened in the upper ſtone) going into one common paſſage with their cavityes not viſible to the eye; that ſo the ſpirits brought by thoſe two nerves may be communicated, and they are mutually joyned and meet together ſo, that being driven back from one eye they may flie backe into the other. An argument whereof may be drawn from ſuch as aime at any thing, who ſhutting one of their eies, ſee more accurately; becauſe the force of the neighbouring ſpirits united into one eye, is more ſtrong than when it is diſperſed into both. This conjugation when it comes into the glaſſie humour, is ſpent in the ſtructure of the net-like coate which containes this humor on the backe part.

The ſecond conjugation,

The ſecond conjugation goes into many parts, at its paſſing forth of the skull, and in the bottome of the circle of the eye it is diſtributed into the ſeaven muſcles moveing the eyes.

The Seventh figure ſhewing the eight conjugations of the Nerves of the braine.

FIG.I.

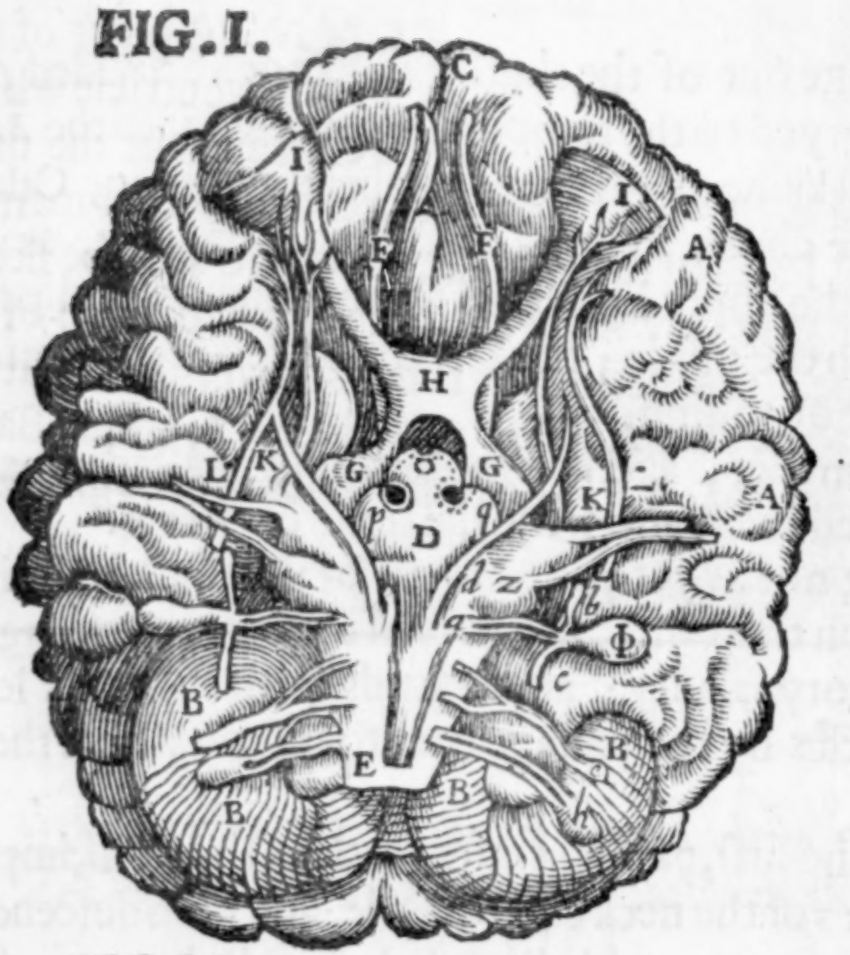
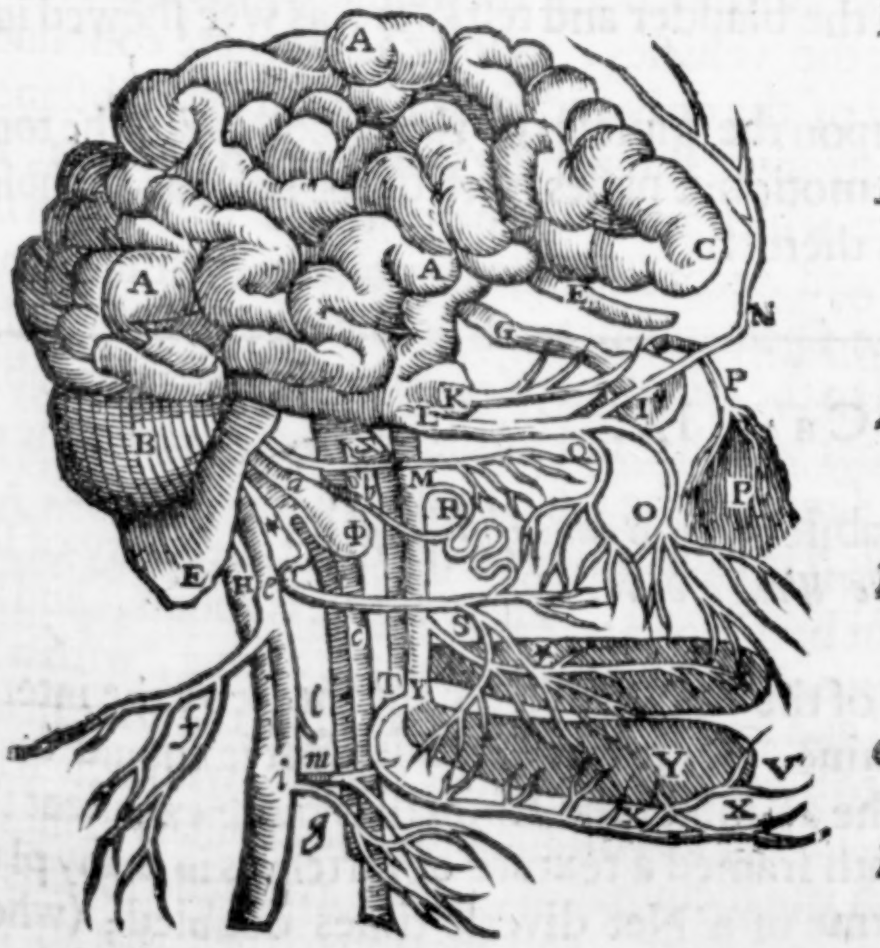


FIG.II.



A A, 2. The braine.
BB 1, 2. The After-braine.
CC 1, 2, the ſwelling of the braine which ſome call the mammillary proceſſes.
D 1, the beginning of the ſpinall marrow out of the Baſis of the braine.
E 1, 2, a part of the ſpinall marrow when it is ready to iſſue out of the skull.
FF 1, 2, the mammillary proceſſes which ſerve for the ſence of Smelling.
GG 1, 2, the opticke nerves.
H 1, the coition or union of the opticke nerves.
II 1, 2, the coate of the eye whereinto the optick nerves is extended.
KK 1, 2, the ſecond paire of the ſinews, ordained for the motion of the eyes.
LL 1, 2, the third paire of ſinewes, or according to the moſt Anatomiſts, the leſſer roote of the third paire.
MM 1, 2, the fourth paire of ſinewes, or the greater roote of the third paire.
N 2, a branch of the third conjugation derived to the muſculous skin of the forehead.
O 2, a branch of the ſame to the upper jaw.
PP 2, another into the coate of the noſethrils.
Q 2, another into the temporall muſcles. *R* 2, a branch of the fourth conjugation crumpled like the tendrill of a vine. *S* 2, a branch of the ſame reaching unto the upper teeth and the gummes. *T* 2, another of the ſame to the lower jaw. *V* 2, a Surcle of the branch T, to the lower lip. *XX* 2, another ſurcle from the branch T, to the rootes of the lower teeth.

YY 2, the aſſumption of the nerves of the fourth conjugation unto the coate of the tongue. *Z* 1,2, the fourth paire are vulgarly ſo called which are ſpent into the coats of the pallat. *a* 1,2. the fift paire of ſinewes which belong to the hearing. Φ, the *Auditory* nerve ſpred abroad into the cavity of the ſtony bone. *, a hard part of the fift conjugation above, the * which may be counted for a diſtinct nerve. *b* 1,2, a ſmall branch derived from this harder part of the firſt paire. *c* 1, 2, a lower branch from the ſame originall. *d* 1,2, this nerve is commonly aſcribed to the fift paire, but indeed is a diſtinct conjugation which we will call the Eight, becauſe we would not interrupt the order of other mens accounts. *e* 1,2, the ſixt paire of ſinewes. *f* 2, a branch from them derived to the neck and the muſcles couched thereupon. *g* 2, another branch to the muſcles of the Larinx or throttle, *h* 1,2, the ſeventh paire of ſinewes. *i* 1, the union of the ſeventh paire with the ſixt. *l* 2, a propagation of the ſeventh paire to thoſe muſcles which ariſe from the Appendix called *Styloides*. *m* 2, Surcles from the ſeventh conjugation to the muſcles of the tongue, the bone *Hyois* and the Larinx. *o p q* 1, three holes; through the hole *o* the phlegme yſlueth out of the third ventricle of the braine to the Tunnell, and at *p q*, is the paſſage of the *Soporary* arteries to the ventricles of the Braine.

The third conjugation.

The third is two-fold, in the paſſage out of the skull it is like-wiſe divided into many branches, of which ſome are carryed to the temporall muſcles, into the *Maſſeteres* or Grinding muſcles, into the skinne of the face, forehead and noſe; Otherſome are ſent into the upper part of the cheek, and the parts belonging to it, as into the teeth, gummes and the muſcles of the upper lippe; and thoſe which are called the round which incompaſſe the mouth on the inſide; the laſt are waſted in the coate of the tongue, to beſtow upon it the ſenſe of taſting.

The fourth conjugation.

The fourth conjugation is much ſmaller, and is almoſt wholy waſted upon the coate of the Pallate of the mouth, to endue it alſo with the ſenſe of taſting.

The fift conjugation.

The fift at its originall and having not as yet paſſed forth of the skull, is divided into two, and ſends the greater portion thereof to the hole of the eare, or paſſage of hearing, that it may ſupport the auditory faculty; and it ſends forth the other leſſer portion thereof to the temporall muſcles by the paſſage next to it; by which the ſecond conjugation paſſes forth.

The ſixt conjugation.

The ſixt being the greateſt next to the firſt, paſſing entire forth of the skull, imparts ſome ſmall branches to certaine muſcles of the neck and throttle, and then deſcending into the cheſt, it makes the recurrent nerves, and diſperſed over all the parts of the two lower bellyes, it paſſes even to the bladder and teſticles, as wee ſhewed in the former booke.

The ſeventh conjugation.

The ſeventh is inſerted and ſpent upon the muſcles of the bone *Hyois*, the tongue and ſome of the throtle, to give them motion; it paſſes forth of the skull by the hole of the nowle bone at the extuberancies thereof.

Chap. IX.

Of the Rete Mirabile, *or wonderfull Net, and of the Wedge bone.*

The exiſtence of the Animall ſpirit.

What the *Rete Mirabile* is.

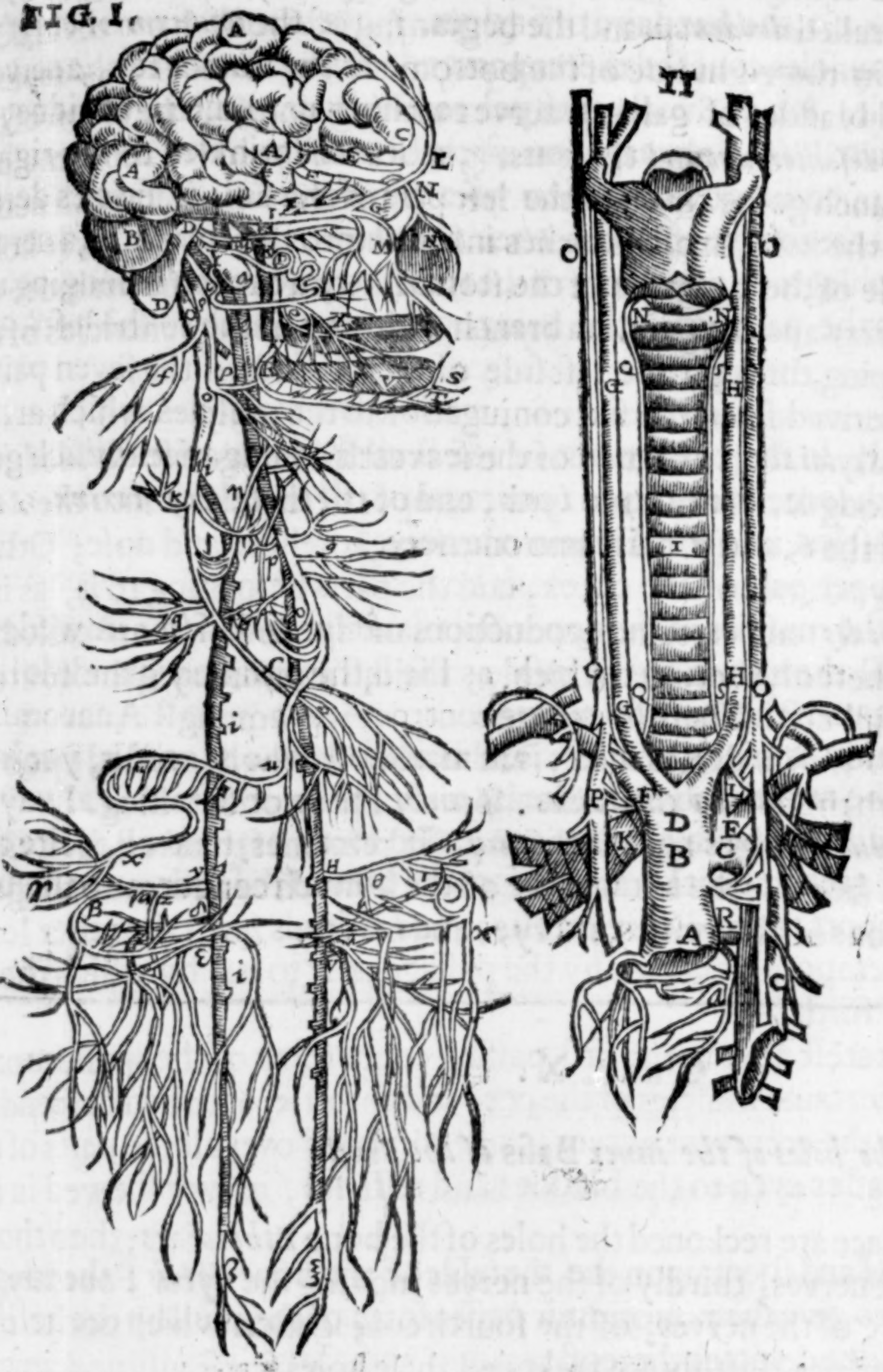
THe Animall ſpirit is made of the vitall, ſent from the heart by the internall ſleepy Arteryes to the braine. For it was requiſite that it ſhould be the more elaborate, becauſe the action of the Animall is more excellent than that of the vitall; nature hath framed a texture of Arteryes in many places running croſſe one another, in the forme of a Net diverſe times doubled; (whereupon it had the name of the wonderfull Net) that ſo the ſpirit by longer delay in theſe Labyrinthean or maze-like turnings, might be more perfectly concocted and elaborate, and attaine to a greater fitneſſe to performe the Animall functions.

The ſite, and number.

This wonderfull Net ſcituate at the ſides of the *Apophyſes clinoides* or productions of the wedgebone, is twofold; that is, divided by the pituitary Glandule which is ſcituate betweene the ſaid *Apophyſes Clinoides*, having the wedgebone lying under them, next to the *Craſſa Meninx*, being perforated on the right and left ſide, next to which lye bones as rare as a ſponge even to the Pallate, by which the Phlegme is purged by the mouth and noſe; and therehence, I thinke, that ſpattle flowes, which ſuch as have a moiſt braine, continually ſpit out of their mouth.

The Eight figure of the braine.

FIG. I.



A, The Braine.
B, The *Cerebellum* or after-braine.
C, A proceſſe of the brain, but not that which is called *Mammillaris*.
D D, The marrow of the backe as it is yet within the skul.
E, The *Mammillary* proceſſe or inſtrument of ſmelling.
F, The opticke nerve.
G, The coate of the eye into which the opticke nerve is ſpread.
H, The nerve that moveth the eye or the ſecond payre.
I, The third conjugation, or the harder and leſſer branch of the nerves of the third conjugation brought forward.
K, The fourth conjugation or the greater and thicker nerve of the third payre bending downward.
L, A branch of the nerve marked with *I*, which goeth to the fore-head.

M, Another branch of the nerve *I*, reaching to the upper jaw, *NN*, A nerve proceeding from the branch *I*, intexed or woven with the coat of the noſe. *O*, The nerve of the temporall muſcle iſſuing from the branch *I*. *P*, A nerve contorted of the nerves *K* and *b*. *Q*, A nerve proceeding from the branch *K*, to the ſockets of the upper teeth. *R*, A nerve creeping from the nerve *K*, to the lower jaw. *S*. A ſurcle of the branch *R*, offered to the lower lip. *T T*, Other ſurcles from the branch *R*, attaining to the lower teeth, *V V*, A branch of the nerve *K*, diffuſed into the coate of the tongue. *X X*, The fourth paire of ſinews which goe into the coat of the pallat. *Y*, The fifth paire of ſinews which are the nerves of hearing. *a*, the membrane of the eare, unto which that fifth nerve goeth. *b c*, two ſmall branches of the fifth conjugation uniting themſelves with the nerve *P*. *d*, the eight conjugation or a nerve of the fifth paire attaining unto the face. *ee*, the ſixt paire of nerves. *f*, A branch from the nerve *e*, reaching to the muſcles of the neck. *g*, Small branches derived unto the throttle or *larynx*. *h*, the byfurcation of the nerve into two branches. *iii*, An inner branch hanging to the rackbones, and ſtrengthning the *intercoſtall* nerves, and is therfore called *Intercoſtalis*. *kk*, Surcles of the utter branch going to the heads of the muſcles, to the breaſt-bone and to the coller-bones. *lm*, branches of the right nerve *l*, making the right Recurrent nerve.

mn,the inſertion of the recurrent ſinews into the muſcles of the *larinx*. *op*, branches of the left nerve making the left recurrent ſinew *p*. *qq*, branches from the ſixt conjugation going to the coate of the lungs. *r*, ſmall nerves of the heart and of the purſe thereof called the *Pericardium*, as alſo ſome approaching to the coats of the lungs. *ſ*,nerves on either ſide ſent to the ſtomack.*t*,the right ſtomacke nerve going to the left orifice of the ſtomack.*u u*, the left ſtomack nerve going to the right orifice of the ſtomack.*x*,a nerve from the branch *u*,paſſing into the hollownes of the liver.*y*, the nerve belonging to the right ſide of the kell. *z*, the nerve belonging to the collick gut. α,a nerve creeping to the gut called *duodenum* and the beginning of the *ieiunum* or empty gut. β,a nerve implanted in the right ſide of the bottome of the ſtomacke. γ,a nerve belonging to the liver and bladder of gall. δ,a nerve reaching unto the right kidney. ε, a branch reaching the *Meſenterium* and the guts. ζ, a branch ſprinkled to the right part of the bladder. η,a branch going through the left part of the kel. θθ, ſurcles derived to the collick gut and the kel.κ,ſmall branches inſerted into the ſpleen. λλ,a nerve approaching to the left ſide of the bottome of the ſtomack. μ, a branch belonging to the left ſide of the *Meſentery* and the guts. ν, a branch which attaineth to the left kidney. ξ, ſmall nerves creeping through the left ſide of the bladder. ο, the ſeven paire of ſinewes. ϖ, a branch derived from the ſixt coniugation to the muſcles which ariſe from the proceſſe called *Styloides*. ρ, a branch of the ſeaventh coniugation which goeth to the muſcles of the tongue, of the bone *hyois*, and of the throtle or *larinx*. ς, A coniunction or coition of the 6. and 7. paire into one nerve.

What the *Apophyſes Clinoides* are.

Whether the *Rete mirable* differ from the *Plexus choroides*.

Theſe *Apophyſes clinoides* are certaine productions of the *Os baſilare* or wedge-bone,(called the Saddle thereof,) between which, as I ſaid,the pituitary glandule lies with part of the wonderfull net. There is a great controverſie amongſt Anatomiſts concerning this part; for *Veſalius* denies that it is in man, *Columbus* admits it, yet hee ſeemes to confound it with the *Plexus Choroides*. Truely I have obſerved it alwayes after the manner, as *Sylvius* alledges againſt *Veſalius*. It remaines, that we recite the perforations of the skull, becauſe the knowledge of theſe much conduces to the underſtanding of the inſertions of the veines,arteryes and nerves.

Chap. X.

Of the holes of the inner Baſis *of the Scull.*

IN the firſt place are reckoned the holes of the bone *Ethmoides*; then thoſe of the optick nerves; thirdly of the nerves moving the eyes. Fourthly of that portion, of the nerves, of the fourth conjugation which goe to the temporall muſcles. Fifthly are reckoned,theſe holes ſcarſe viſible,ſcituate under the pituitary glandule, by which the ſpettle is evacuated. Sixthly that hole which is in the wedge bone made for the entrance of the internall ſleepy Arteries, compoſing the wonderfull Net, and then paſſing into the braine by a great ſlit. That perforation which we reckon in the ſeventh place is commonly double, made for the entrance of one of the branches of the internall Iugular veine. The eight hole is ſomewhat long,of an ovall figure,by which,part of the third conjugation and all the fourth conjugation paſſes forth. The ninth are the auditory paſſages. The tenth are very ſmall holes,and give way to the veine and artery going to the auditory paſſage, above the *foramen cæcum*. In the eleaventh place are reckoned the perforations which yeild paſſage forth to the ſixth paire of nerves, to part of the ſleepy Arteries, and of the internall jugular. In the twelvth thoſe which yeild a way out to the ſeventh conjugation; The great hole of the Nowle bone through which the ſpinall marrow paſſes is reckoned the thirteenth. The fourteenth is that, which moſt commonly is behinde that great hole,by which the Cervicall veines and arteries enter in.

CHAP. XI.

Of the perforations of the externall Baſis *of the Braine.*

THere is a hole on each ſide at the Eye-browes, by which paſſes a ſmall nerve from the third conjugation comming out of the cavity of the Orbe of the eye, and going by the forehead bone to the eye-browes, that it may give motion to the two muſcles of the upper eye-brow and forehead. Yet oftentimes the hole is but to bee ſeene on one ſide, oft times there is a cleft inſtead thereof, otherwhiles it is not perforated nor cleft at all. The ſecond, is the perforation of the greater corner of the eye, by which a portion of the nerves of the third coniugation deſcends to the coate of the noſe; in this hole the *Glandula Lachrymalis* is ſeated. The third is ſeated under the eye, that it may give way to the other portion of the nerves of the third coniugation going to the parts of the face, and the teeth of the upper jaw. The fourth is at the beginning of the pallate, amongſt the cutting or ſhearing teeth, through which a veine, an artery and the coate of the pallate paſſes out. In the fifth order are reckoned the perforations of the pallate, by which the nerves deſcend from the fourth coniugation, to give, or cauſe the taſte. In the ſixt order are rancked the holes of the pallate ſerving for reſpiration, and the flegme falling from the braine by the noſethrils. And there is a cleft under the yoake bone aſcending into the Orbe of the eye, by which there is a way, as wel for the nerves of the third coniugation to the Temporall muſcles, as alſo for certaine veines and arteryes. But alſo there is noted another hole at the mammillary proceſſe, which is not perforated in the iudgement of the ſenſe. Beſides there is thought to be another at the hinde roote of the ſame proceſſe, by which a certaine ſmall veine paſſes from the Iugular to the *Torcular*. But I have onely noted theſe three paſſages by the way, becauſe there is ſo much variety in them, that nothing can be certainely ſaid of them.

CHAP. XII.

Of the Spinall Marrow, or Pith of the Backe.

What the Spinall marrow is.

THe ſpinall Marrow is like a River running from the fountaine of the braine. This ſends nerves for ſenſe and motion to all the neighbouring parts under the head, ſpreading its branches as from the body of a tree. Theſe branches, as we ſhall hereafter ſhew, are on each ſide thirty. This ſame ſpinall marrow is covered with the two membranes inveſting the braine, diſtinguiſhed by no diſtance of place, as in the braine. But alſo it hath another membrane added to theſe, being very hard and denſe, which keeps it from being broken and violated by the violent bending of the body forewards and about. The diſeaſes of this marrow doe almoſt cauſe the like Symptomes, as the diſeaſes of the braine; For they hurt the ſenſe and motion of all the parts lying beneath them, as for example; If any of the vertebra's of the back bone, be moved out of their place, there followes a diſtortion or wreſting aſide of the Marrow; but then eſpecially if it happen that one of the vertebra's be ſtrained, ſo ſharpe and bitter a compreſſion urges the marrow by reaſon of the bony body of the vertebra, that it will either rend it, or certainely hinder the paſſage of the ſpirit by it. But by theſe ſame holes of the vertebra's the veines and arteryes goe to the ſpinall marrow for to give life and nouriſhment to it, as the nerves by them paſſe forth into all the lower parts of the body.

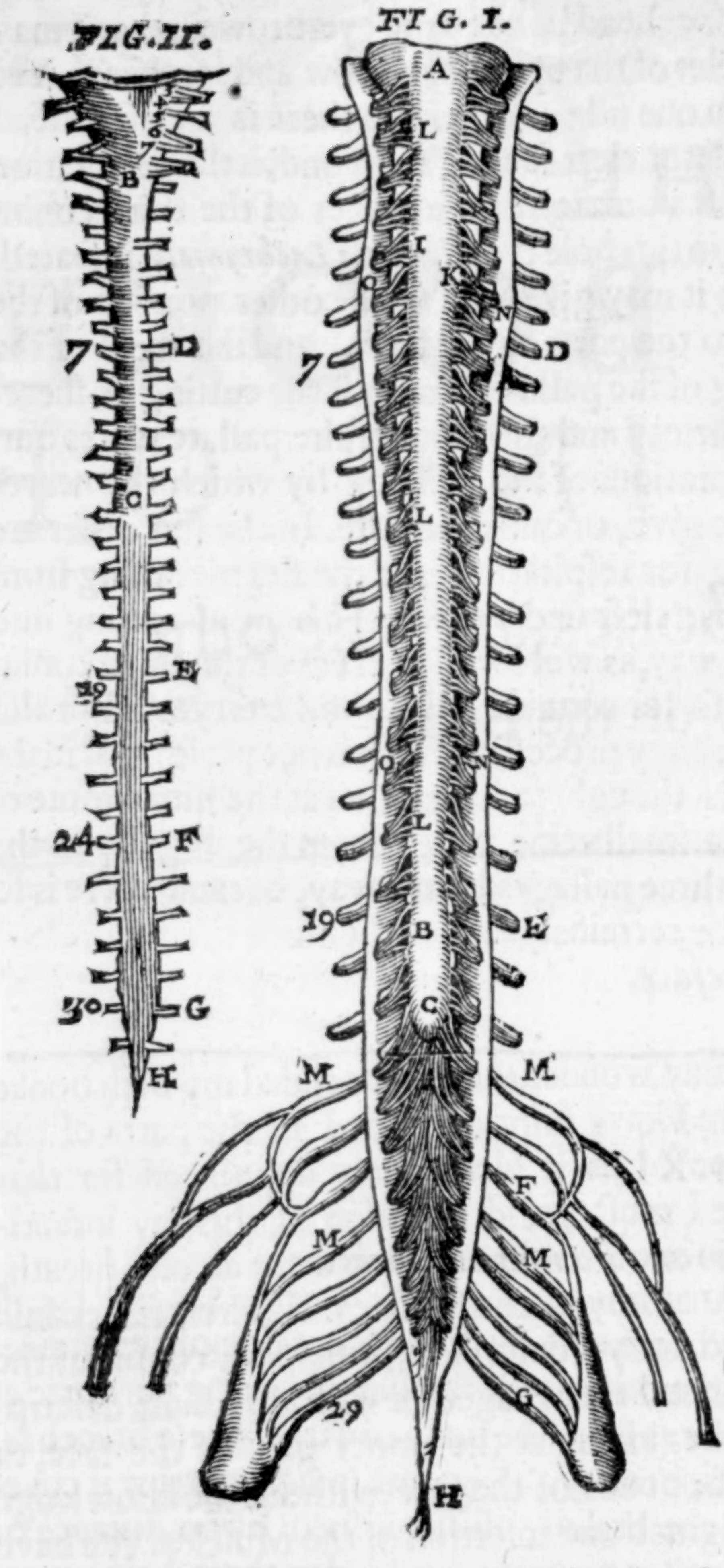
The coats of the ſpinall marrow.

The diſeaſes from the hurting of the ſpinall marrow.

Figure 1. ſheweth the forme of the ſpinall marrow properly ſo called, with its membranes, and the nerves proceeding from it.

Figure 2. The ſpinall marrow naked and bare, together with its nerves, as moſt part of Anatomiſts have deſcribed it.

The tenth figure of the ſpinall marrow.



A, The beginning of the ſpinall marrow where it fals out of the ſkull.

B, The thickneſſe thereof in the ſpondels or rack-bones of the loynes.

C, The diviſion thereof into ſtrings, or hairy threds.

D, the ſeven nerves of the necke.

From *D* to *E* or from 7, to 19, ſhew the nerves of the backe.

From *E* to *F*, the nerves of the loynes.

From *F* to *G*, the nerves of the *os ſacrum* or holy bone.

H, the end of the marrow.

IKL, do ſhew how the nerves doe iſſue from the marrow in ſtrings.

MM, the knots of the ſinewes made of the conjunction of thoſe ſtrings.

NO, the membranes that inveſt the marrow.

Figure 2.

A, The beginning of the ſpinall marrow in the ſcull.

3, 4, 5, 6, 7, Theſe Characters ſhew (according to *Veſalius* opinion) how the conjugations of the nerves of the braine doe take their originall from the marrow remaining yet within the Skull.

B, The egreſſe of the ſpinall marrow out of the ſkull.

C, The cords or ſtrings whereinto it is divided.

D 7, The marrow of the necke and ſeven paire of ſinewes. *E* 19, twelve paires or conjugations of nerves proceeding from the marrow of the Cheſt. *F* 24, The marrow of the loynes and 5. paire of ſinewes. *G* 30. the marrow of the holy-bone and 6, paire of ſinewes. *H*, the extremity or end of the ſpinall marrow.

The End of the Fifth Booke.

THE

THE SIXTH BOOKE TREATING OF the Muſcles and Bones, and the other Extreme parts of the Body.

The Preface.

PEradventure ſome may wonder, that I have ended my fifth booke of Anatomie, before I have fully deſcribed all the parts of the head, the which ſeemed as it were onely appointed for that purpoſe. Therefore I muſt yeeld a reaſon of this my intention. I have a deſire in one Treatiſe and as it were at one breath, to proſequute the Anatomy of the Muſcles. Wherefore becauſe the parts of the head not yet deſcribed, principally conſiſt of the Muſcles, therefore I deſired to comprehend them together with this ſame deſcription of the extreme parts of the body; beginning at the upper part of the face, to wit, the eyes: but having firſt deſcribed the bones of the face, without the knowledge of which it is impoſſible to ſhew the originall and inſertion of the Muſcles. We have formerly noted that by the face is meant whatſoever lyes from the Eye-browes even to the Chin. In which there is ſuch admirable induſtry of nature, that of the infinite multitude of men you cannot finde two ſo like, but that they may be diſtinguiſhed by ſome unlikeneſſe in their faces; alſo it hath adorned this part with ſuch exquiſite beauty, that many have dyed by longing to enjoy the beauty deſired by them. This ſame face albeit it little exceeds halfe a foote, yet it indicates and plainely intimates by the ſuddaine changes thereof, what affections and paſſions of hope, feare, ſorrow and delight poſſeſſe our minds; and what ſtate our bodyes are in, ſound, ſicke or neither. Wherefore ſeeing the face is of ſo much moment, let us returne to the Anatomicall deſcription thereof, which that wee may eaſily and plainely performe wee will begin with the bones thereof, whereby, as we formerly ſayd, the originall and inſertion of the Muſcles may be more certaine and manifeſt to vs.

The deſcription of the bones being unknowne, it muſt neceſſarily follow that the originall and inſertion of the muſcles muſt be ſo alſo

The endowments of the face.

The countenance is the bewrayer of the will.

CHAP. I.

Of the bones of the Face.

Bones in each orbe of the Eye.

What the *Zygoma* is and what uſe it hath.

The *Ægylops*.

The two bones of the noſe.

The two inner bones of the palate.

The bones of the face are 16, or 17, in number. And firſt, there be reckoned 6 about the Orbs of the eyes, that is 3 to each orbe, of which one is the bigger, another leſſer, and the third between both; each of theſe touch the forehead bone in their upper part. Beſides, the greater is joyned with a ſuture to the proceſſe of the ſtony bone, and ſo makes the *Zygoma*, that is, the *Os Iugale* or yoake bone, framed by nature for preſervation of the temporall muſcle. The leſſer is ſeated at the greater corner of the eye, in which there is a hole perforated to the noſe, and in this is the glandule in which the Ægylops doth breed. The middle is in the bottome, or inner part of the orbe, very ſlender & as it were of a membranous thinneſſe: then follow the two bones of the noſe which are joyned to the forehead bone by a ſuture, but on the foreſide between them ſelves by harmony. But on the backe or hinde part with two other bones, on each ſide one, which deſcending from the bone of the forehead (to which alſo they are joyned by a ſuture) receive all the teeth. Theſe two in *Galens* opinion are ſeldome found ſeparated. But theſe are the thickeſt of all the bones of the face hitherto mentioned, knit by a ſuture with the greateſt bone of the Orbe, on the backe part with the wedge-bone, on the inner ſide with the two little inner bones of the pallate, which on the inſide make the extremity thereof, whereby it comes to paſſe, that we may call theſe bones the hinder, or inner bones of the pallate. They reckon one of theſe bones the eleventh and the other the twelfth bone of the head; theſe two little bones on their ſides next to the winged productions of the wedge-bone, receive on each ſide one of the nerves of the fourth conjugation, which in the former booke, we ſaid were ſpent upon the membrane of the pallate.

The two bones of the Iaw.

Two productions on each ſide of the lower Iaw.

And in *Galens* opinion there be other two in the lower Iaw, joined at the middle of the chin; although ſome thinke it but one bone, becauſe by the judgement of ſenſe there appeares no diviſion or ſeparation therein. But you may ſee in children how true this their ſuppoſition is, for in men of perfect growth it appeares but one bone; theſe two are reckoned for the thirteenth and fourteenth bones. Now theſe two bones making the lower Iaw, have in their back part on each ſide two productions, as they lye to the upper Iaw, the one of which repreſents the point of a ſword, and is called the *Corone*; the other is obtuſe and round, which is inſerted into the cavity ſeated at the root of the proceſſe of the ſtony bone, nere to the paſſage of the eare.

The Luxation of the lower Iaw.

This may be ſtrained to the forepart by violent gaping, by retraction of the muſcles ariſing from the wing-like proceſſes, and ending at the lower angles of the broader part of the ſame Iaw.

The lower Iaw filled with a marrowy humor.

How the teeth feele.

Why the teeth have a beating paine.

This Iaw is hollow as alſo the upper, eſpecially in the back-part, being filled with a white and glutinous humor, conducing to the growth of the teeth. This humor hath its matter from the blood brought thither by the veſſels, veines, Arteryes and nerves from the third coniugation entring in here by a paſſage large enough. Whereby it comes to paſſe, that this part is not only nouriſhed and lives, but alſo the teeth receive ſence by the benefit of the nerves entring thither with the veine and artery, by ſmall holes to be ſeene at the lower roots of the teeth; and thence it is that a beating paine may be perceived in the tooth-ach, becauſe the defluxion may be by the arteryes; or rather becauſe the humor flowing to the roots of the teeth may preſſe the artery in that place; beſide alſo you may ſee ſome apparance of a nervous ſubſtance in the root of a tooth newly pluckt out.

The nerves of the Lower Iaw muſt be obſerved.

But alſo you muſt conſider, that this Iaw from its inner capacity produces at the ſides of the chin two nerves of a ſufficient magnitude, over againſt the lower dog-teeth and the firſt of the ſmaller grinding teeth, as I have noted in the deſcription of the nerves of the third coniugation. I have thought good to put thee in minde of theſe, that when thou ſhalt have occaſion to make inciſion in theſe places, thou maieſt warily and diſcreetly handle the matter, that theſe parts receive no harme.

The bone of the noſe above the pallate, or the partition of the noſe.

There remaines another bone ſeated above the pallate, from which the griſtlely partition of the noſe ariſes, being omitted of all the Anatomiſts; for as much as I know. Now therefore that you may the better remember the number of the bones of the face, I will here make a repetition of them.

There are ſixe of the orbs of the eyes, at each three. The ſeventh and eight wee may call the Naſall, or noſe bones. The ninth and tenth the Iaw-bones. The eleventh and twelfth are called the inner bones of the pallate. The thirteenth and fourteenth the bones of the lower Iaw. The partition of the noſe may be reckoned the fifteenth.

Now it remaines having ſpoken of theſe bones, that wee treate of the teeth, the Eye-browes, the skinne, the fleſhy pannicle, the Muſcles, and laſtly the other parts of the face.

Chap. II.

Of the Teeth.

The teeth are bones.

The ſhearing teeth.

The Dogteeth

THe Teeth are of the number of the bones, and thoſe which have the moſt have thirty two, that is, ſixeteene above, and ſo many belowe; of which in the forepart of the mouth there are foure above and as many beneath, which are called *Inciſorij* cutting or ſhearing teeth, to cut in ſunder the meat, and they have but one root. To theſe are ioyned two in each Iaw, that is, on each ſide of the other one, which are called *Canini dentes*, Dogges-teeth, becauſe they are ſharp and ſtrong like dogges teeth; theſe alſo have but one roote, but that is farre longer than the other have.

The Grinding teeth.

Why the upper grinding teeth have more rootes.

The uſe of the teeth.

follow the *Molares* or Grinders, on each ſide five, that is, tenne above and as w, that they may grinde, chaw and breake the meat, that ſo it may be the cocted in the ſtomack; for ſo they vulgarly thinke, that meat well chawed cocted; thoſe grinders which are faſtened in the upper jaw, have moſt com- ee roots, and oft times foure. But theſe which are faſtened in the lower, have roots, and ſometimes three, becauſe this lower jaw is harder than the up- nat it cannot be ſo eaſily hollowed, or elſe becauſe theſe teeth being fixed and y ſeated, needed not ſo many ſtayes as the upper, which as it were hang out of ſeats. The ſhearing teeth cut the meat becauſe they are broad and ſharp; the -teeth break it becauſe they are ſharp pointed and firme; but the grinders being , broad and ſharp, chaw and grind it aſunder. But if the grinders had beene ſmooth, ey could not fitly have performed their duty, for all things are chawed and broken aſunder more eaſily by that which is rough and unequall.

Wherefore they ſharpen their Milſtones when they are ſmoother than they ſhould be, by picking them with a ſharp Iron. The teeth are faſtened in the jawes by *Gomphoſis*, that is, as a ſtake or naile, ſo are they fixed into the holes of their jawes; for they adhere ſo firmely thereto in ſome, that when they are pluckt out, part thereof followes together with the tooth; which I have often obſerved to have beene alſo with great effuſion of blood. This adheſion of the teeth faſtened in their jawes is beſides ſtrengthened with a ligament, which applyes it ſelfe to their roots together with the nerve and veſſels. The teeth differ from other bones; becauſe they have action whileſt they chaw the meat; becauſe being loſt they may be regenerated, and for that they grow as long as the party lives, for otherwiſe by the continuall uſe of chawing they would be worne and waſted away by one another. You may perceive this by any that have loſt one of their teeth, for that which is oppoſite to it becomes longer than the reſt, becauſe it is not worne by its oppoſite. Beſides alſo they are more hard and ſolide than the reſt of the bones, and indued with a quick ſenſe by reaſon of the nerves of the third conjugation which inſert themſelves into their roots; for if you rub, or grind a tooth newly pluckt out, you may ſee the remaines of the nerve; they have ſuch quick ſenſe, that with the tongue they might judge of taſtes. But how feele the teeth, ſeeing they may be filed without paine? *Fallopius* anſweres, that the teeth feele not in their upper or exterior part, but only by a membrane which they have within. And

The teeth are faſtened in the Iawes by *Gomphoſis*.

The faſtening of the teeth into the Iawes is to be obſerved.

Wherein the teeth differ from the other bones.

For what uſe the teeth have ſenſe.

The foreteeth helpe for the articulation of the voyce.

the teeth have another uſe, eſpecially the fore-teeth, which is, they ſerve for diſtinct and articulate pronuntiation; for thoſe that want them faulter in ſpeaking, as alſo ſuch as have them too ſhort, or too long, or ill rancked. Beſides, children ſpeak not diſtinctly before they have their foreteeth. And you muſt note that the infant as yet ſhut up in its mothers womb hath ſolide and bony teeth; which you may perceive by diſſecting it preſently after it is borne.

But even as there are two large cavities, in the forehead bone at the eye-browes, filled with a viſcous humor, ſerving for the ſmelling; and in like manner, the aire ſhut up in the mamillary proceſſes is for hearing; ſo in the jawes there be two cavities furniſhed with a viſcide humor for the nouriſhment of the teeth.

Chap. III.

Of the Broade Muſcle.

NOw we ſhould proſecute the containing parts of the face, to wit the skin, the fleſhy pannicle and fat; but becauſe they have beene ſpoken of ſufficiently before, I will onely deſcribe the fleſhy pannicle, before I come to the diſſection of the eye, that wee may the more eaſily underſtand, all the motions performed by it, whether in the face or forehead.

Firſt that you may more eaſily ſee it, you muſt curiouſly ſeparate the skin in ſome part of the face. For unleſſe you take good heed, you will pluck away the fleſhy pannicle together with the skinne, as alſo this broad muſcle to which it immediatly adheres, and in ſome places ſo cloſly and firmely, as in the lips, eye-lids and t ole forehead, that it cannot be ſeparated from it. Nature hath given motion ing force to this broad muſcle, that whileſt it extends, or contracts it ſerve to ſhut and open the eye. It will be convenient to ſeparate the mu from the skin, beginning from the forepart of the clavicles even to th ing in a right line, and then turning backe as far as you can; for thus how it mixes it ſelfe with the skinne and the muſcles of the lips.

There are no particular muſcles appointed to open and ſhut the eye, for that is the worke of the broad muſcle onely. Divers reaſons to that purpoſe.

When thou ſhalt come to the Eyes, thou ſhalt teach how the eye is ſhu by this one muſcle, becauſe it is compoſed of the three ſorts of fibers; the opinion of all who have hitherto written of Anatomy, thoſe actions be performed by the power of two muſcles appointed for that purpoſe; one is at the greater corner on the upper part, the other reſembling a ſemicircle leſſer corner, from whence extending it ſelfe to the midle of the griſtle *Tarſus* meets with the former ending there, but they are in part extended over all the eye, whereby it commeth to paſſe that it alſo in ſome ſort becometh moveable. But although in publike diſſections theſe two muſcles are commonly wont to be ſolemnly ſhewed, after the manner I have related; yet I thinke, that thoſe which ſhew them know no more of them, than I doe. I have grounded my opinion from this, that there appeares no other muſculous fleſh in theſe places, to thoſe which ſeparate the fleſhy pannicle, or broad muſcle, than that which is of the panicle it ſelfe, whether you draw your inciſion knife from the forehead downewards, or from the cheeke upwards.

Why you muſt take heede of making a tranſverſe inciſion upon the eye-browes.

Beſides when there is occaſion to make inciſion on the eye-browes, we are forbidden to doe it tranſverſe, leaſt this broad muſcle falling upon the eye, make the upper Eye-lid unmoveable: but if ſuch a cut be received accidentally, we are commanded preſently to ſtitch it up; which is a great argument that the motion of the upper eye-lid is not performed by its proper muſcles, but wholy depends and is performed by the broad muſcle. Now if theſe ſame proper muſcles which we have deſcribed ſhould be in the upper eye-lid, it ſhould be meet, (becauſe when one of the muſcles is in action, the other which is its oppoſite or Antagoniſt, reſts or keeps holiday,) that when that which is ſaid to open the eye is imployed, the oppoſite thereof reſting, the upper eye-lid ſhould be drawne towards its originall, as we ſee it happens in convulſions: becauſe the operation of a muſcle is the collection of the part which it moves towards its originall.

The action of a muſcle.

Therefore ſeeing ſuch a motion or collection appears not any where in the eye-lid, I thinke it therefore manifeſt that all the motion of this upper eye-lid depends upon this broad muſcle, and that it alone is the author of the motion thereof.

The originall of this broad muſcle is from the upper part of the *Sternon*, the clavicles, the ſhoulder blades, and all the ſpines of the *vertebra's* of the neck: but it is inſerted into all theſe parts of the head which want haire, and the whole face, having diverſe fibers from ſo various an originall. by benifit of which it performes ſuch manifold motions in the face (for it ſo ſpreads it ſelfe over the face, that it covers it like a vizard) by reaſon of the variety of the originall and the production of the divers fibers of this muſcle. But I have not in the deſcription of this muſcle proſecuted thoſe nine conditions, which in the firſt booke of my anatomy I required in every part, becauſe I may ſeeme to have ſufficiently declared them in the deſcription of the muſcles of the *Epigaſtrium*. Wherfore hence forward you muſt expect nothing from me in the deſcription of muſcles beſides their originall, inſertion, action, compoſition, and the deſignation of their veſſels.

The originall of the broad muſcle.

The inſertion and reaſon why we expreſſe ſo many motions with the face.

Chap. IIII.

Of the Eye-lids and Eye-browes.

Becauſe wee have fallne into mention of the Eye-lids and Eye-browes, and becauſe the order of diſſection alſo requires it, we muſt tell you what they are, of what they conſiſt, and how and for what uſe they were framed by nature. Therefore the Eye-browes are nothing els, than a ranck of haires ſet in a ſemicircular forme upon the upper part of the orbe of the Eye, from the greater to the leſſer corner thereof, to ſerve for an ornament of the body and a defence of the eyes againſt the acrimony of the ſweat falling from the forehead.

What the eye-browes are.

Their uſe.

But the Eye-lids on each ſide two, one above and another below, are nothing els than as it were certaine ſhuttings appointed and made to cloſe and open the eyes when need requires, and to containe them in their orbes. Their compoſure is of a muſculous skin, a griſtle and haires ſet like a pale at the ſides of them to preſerve the eyes when they are open, chiefly againſt the injuries of ſmall bodyes, as motes, duſt & ſuch like. Theſe haires are alwaies of equall and like bigneſſe, implanted at the edges of the griſtly part, that they might alwaies ſtand ſtraight and ſtiffe out. They are not thick, for ſo they ſhould darken the eye. The griſtle in which they are faſtened is encompaſſed with the *pericranium* ſtretched ſo far before it produce the *Coniunctiva*. It was placed there, that when any part thereof ſhould be drawne upwards or downewards by the force of the broad muſcle or of the two proper muſcles, it might follow entirely and wholy by reaſon of its hardnes. They call this ſame griſtle, eſpecially the upper, *Tarſus*. The upper and lower eye-lid differ in nothing, but that the upper hath a more manifeſt motion, and the lower a more obſcure; for otherwiſe nature ſhould have in vaine encompaſſed it with a muſculous ſubſtance.

What the eye-lids are.

Their compoſure and uſe.

What the Tarſus is.

Chap. V.

Of the Eyes.

The Eyes are the inſtruments of the faculty of ſeeing, brought thither by the viſive ſpirit of the opticke nerves, as in an aqua-ducte. They are of a ſoft ſubſtance, of a large quantity, being bigger or leſſer according to the bigneſſe of the body. They are ſeated in the head, that they might overlooke the reſt of the body, to perceive and ſhun ſuch things as might endanger, or endamage the body; for the action of the eyes is moſt quick, as that which is performed in a moment, which is granted to none of the other ſenſes. Wherefore this is the moſt excellent ſenſe of them all. For by this wee behold the fabricke and beauty of the

What the eyes are.

Their ſite.

The quicknes and excellency of their action.

heavens and earth, diſtinguiſh the infinite varietyes of colours, we perceive and know the magnitude, figure, number, proportion, ſite, motion and reſt of all bodyes. The eyes have a pyramidall figure whoſe baſis is without, but the Cone or point within at the opticke nerves. Nature would have them contained in a hollow circle, that ſo by the profundity and ſolidity of the place they might be free from the incurſions of bruiſing and hurtfull things.

Figure.

Compoſition.

They are compoſed of ſix muſcles, five coats, three humors, and a moſt bright ſpirit, (of which there is a perpetuall afflux from the braine) two nerves, a double veine, and one artery, beſides much fat, and laſtly a Glandule ſeated at the greater angle thereof, uppon that large hole which on both ſides goes to the noſe, and that, leſt that the humours falling from the braine ſhould flow by the noſe into the eyes, as we ſee it fares with thoſe whoſe eyes perpetually weep, or water, by reaſon of the eating away of this glandule, whence that affect is called, the *Fiſtula lachrymalis*, or weeping Fiſtula.

Glandula Lachrymalis.

Fiſtula Lachrymalis.

Why fat is placed about the eyes.

But there is much fat put between the muſcles of the eye, partly that the motion of the eyes might be more quick, in that ſlipperines of the fat, as alſo that the temper and complexion of the eyes, and chiefly of their nervous parts, might be more conſtant and laſting, which otherwiſe by their continuall and perpetuall motion would be ſubject to exceſſive dryneſſe. For nature, for the ſame reaſon hath placed Glandules flowing with a certaine moiſture, neere thoſe parts which have perpetuall agitation.

Chap. VI.

Of the Muſcles, Coats and humors of the Eye.

The number, ſite and action of the muſcles.

There are ſixe muſcles in the eye, of which foure performe the foure direct motions of the eye: they ariſe from the bottome of the orbe, and end in the midſt of the eye encompaſſing the opticke nerve. When they are all moved with one endevour, they draw the eye inwards. But if the upper only uſe its action, it drawes the eye upwards; if the lower, downewards; if the right, to the right ſide; if the left, to the left ſide.

The two other muſcles turne the eye about, the firſt of which being the longer and ſlenderer, ariſes almoſt from the ſame place, from which, that muſcle ariſes which drawes the eye to the right ſide to the greater corner. But when it comes to the utmoſt part of the inner angle, where the *Glandula lachrymalis* is ſeated, it ends in a ſlender Tendon, there peircing through the middle membrane which is there, as through a ring; from whence it preſently going backe is ſpent in a right angle towards the upper part of the eye, betwixt the inſertions of thoſe 2 muſcles, of the which one draws the eye upwards, the other directly to the outward corner, as it is obſerved by *Fallopius* or rather, which I remember I have alwaies obſerved, they turne between the muſcles which move the eye upwards, and to the inner corner.

This fifth muſcle when it is drawne in towards its beginning, ſo drawes the eye with its circular tendon, that it carries it to the greater corner.

The ſixt muſcle is contrary to that; for it hath its originall from the lower part of the orbe at a ſmall hole, by which a nerve of the third conjugation paſſes forth; and being that it is moſt ſlender, whileſt it aſcends tranſverſely to the outward corner, it involves the eye ſo alſo, that it is inſerted in it by a ſmall Tendon, ſo that the Tendons of them both are oftentimes taken but for one. That thou maieſt truely and accurately obſerve this anatomicall deſcription of the eye; the eye muſt not be pluct out of its orbe, but rather the orbe it ſelfe muſt be broken and ſeparated.

For thus thou ſhalt certainlie and plainelie ſee the forementioned originall of the muſcles. For the five coats, the firſt which is firſt met with in diſſection, comes from the pericranium, and is extended over all the white of the eye, even to the *Iris* or Rain-bow. The duty of it is to ſtrengthen, bind and containe the eye in its orbe, wherefore it had the name *Coniunctiva*, others call it *Adnata*, or *Epipephyces*.

The 5 coats of the eye.

1 *Conjunctiva, or Adnata.*

The

2. *Cornea*, or the Horny coate.

The ſecond is called the *Cornea*, becauſe it reſembles a horne in colour and conſiſtence; this coat differs and varyes from it ſelfe, for in the forepart, as far as the *Iris* goes, it is clear and perſpicuous, but thick & obſcure in the hinde part, by reaſon of the diverſe poliſhing. On the fore-part it is denſe that it may preſerve and containe the Chriſtalline and wateriſh humor, but withall tranſparent ſo to give the object a freer paſſage to the Chryſtalline. It hath its originall from the *Craſſa meninx*, proceeding forth from the inner holes of the orbe of the eye, for it compaſſes the eye on every ſide.

3 *Vvea*, or the grapye coate.

The third is called the *Vvea* or Grapy coat, becauſe in the exterior part it repreſents the colour of a black grape; it ariſes from the *Pia mater*, and encompaſſes all the eye, except the *pupilla* or apple of the eye, for here being perforated, it adheres to the horny coate by the veines and arteries which it communicates to it for life and nouriſhment. But when it arives at the *Iris*, then forſaking the *Cornea*, it deſcends deep into the eye, and in ſome ſort is turned about the Chriſtalline humour, to which alſo it moſt firmely adheres, ſo bounding the wateriſh humor, and alſo prohibiting that the Albugineous humor doe not overwhelme the Chriſtalline. This grapy coate is as it were dyed on the inſide with divers colours, as black, browne, blew, or green like a raine-bow, and that for theſe enſuing benifits.

Why the grapy coate reſembles divers colours.

The firſt is, if that it had beene tinctured with one colour, all objects would have appeared of the ſame colour, as it comes to paſſe when we looke through green or red glaſſe. But it muſt be coloured, that ſo it may collect the ſpirits diſſipated by the Sunne and ſeeing.

Thirdly it was convenient it ſhould be painted with infinite variety of colours for the preſervation of the ſight. For as the extreame colours corrupt and weaken the ſight, ſo the middle refreſh and preſerve it, more or leſſe as they are neerer, or further remote from the extremes. It was fit it ſhould be ſoft, that ſo it might not hurt the Chriſtalline humor uppon whoſe circumference it ends; and perforated in the part objected to it, leaſt by its obſcurity it ſhould hinder the paſſage of the objects to the Chriſtalline, but rather that it might collect by its blacknes as a contrary, the great and as it were diffuſed varietye of colours, no otherwiſe than wee ſee the heat is ſtrengthened, by the oppoſition of cold; ſome call this coat *Choroides*, becauſe it is woven with many veines and arteries, like the coat *Chorion* which involves the infant in the wombe.

4 *Amphibliſtroides* or *Retiformis*, Net-like coate.

Now followes the fourth coate called *Ampibliſtroides* or *Retiformis*, the Net-like coate, becauſe proceeding from the opticke nerve dilated into a coate, it is woven like a net with veines and arteries which it receives from the grapy coate, both for the life and nouriſhment both of its ſelfe, as alſo of the glaſſie humor which it encompaſſes on the back part. The principall commodity of this coate is, to perceive when the Chriſtalline humor ſhall be changed by obiects, & to leade the viſive ſpirit inſtructed or furniſhed with the faculty of ſeeing, by the mediation of the glaſſie humor, even to the Chriſtalline being the principall inſtrument of ſeeing. It is ſofter than any other coate, leaſt the touch of it ſhould offend that humor. Wherein thou wilt admire the ſingular order of nature, which as in other things it paſſes not from one extreme to another unleſſe by a *Medium*, ſo here it hath not fitted the hard horny coate to the ſoft humors, but by interpoſition of divers *media* of a middle conſiſtence. For thus after the harder coats *Adnata* and *Cornea* it hath placed the Grapy coate, by ſo much ſofter then theſe two, as the Net-like coat is ſofter then it, that thus it might paſſe from extreme to extreme as it were by theſe degrees of hardnes and ſoftnes.

An anatomicall Axiome.

5 *Arachnoides*, *ſive Araneoſa*, the Cowebs coate.

The fifth and laſt coate is called *Arachnoides*, becauſe it is of the conſiſtence of a ſpiders web. And wee may well reſemble this coate, to that skin of an union which exceeds the other in clearneſſe, whiteneſſe and thinneſſe. This *Araneoſa* or Cobweb-like coate encompaſſes the Chriſtalline humor on the fore ſide, peradventure that ſo it might defend it, as the chiefe inſtrument of ſeeing, if the other humors ſhould at any time bee hurt. It hath its originall from the excrementitious humidity of the Cryſtalline humor, hardened into that coate by the coldnes of the adjacent parts; abſolutely like the thin skin which encompaſſes the white of an Egge.

The 3 humors of the Eye.

1 *Aqueus*, or watery.

The firſt humor of the eye is called the *Aqueus* or wateriſh, from the ſimilitude of water; it is ſeated betweene the tranſparent part of the Horny coate, the portion

of

of the Chriſtalline humor lying towards the apple of the eye, and that reflection of the Grapy coate which comes from the *Iris* to the circumference of the Chryſtalline humor, that filling the empty ſpace it may diſtend the *Cornea*, and ſo hinder the falling thereof upon the Chryſtalline which would ſpoyle the ſight; as alſo that by its moiſture it might hinder the drying of the Chryſtalline humor. Peradventure it is made of the whayiſh humor ſweating out of the veſſells of the coats, having their orifices for the moſt part in that place, where this wateriſh humor reſides. The ſecond humor and middle moſt in ſcituation is called the Chryſtalline becauſe it imitats Cryſtall in the brightneſſe and colour; if ſo be that we may attribute any colour to it. For indeed it was fit that none of the three humors ſhould be tinctured with any colour, as thoſe which ſhould be the inſtruments of ſight, leſt they might beguile us in ſeeing as Red and greene ſpectacles doe; for that is true which wee have read written by the Philoſopher; That the Subject or matter appointed for the reception of any forme ſhould want all impreſſion thereof. Hence Nature hath created a formeleſſe matter, the humors of the eyes without colours, waxe without any figure, the minde without any particular knowledge of any thing, that ſo they might be able to receive all manner of formes. The figure of the Cryſtalline humor is round, yet ſomwhat flatted on the foreſide, but yet more flatted behinde that ſo the objects might be the better retained in that, as it were, plane figure, and that they might not fly backe as from a Globe, or round body, in which they could make but ſhort ſtay; leſt it might be eaſily moved from its place, by the force of any thing falling or hitting againſt it, becauſe that body which is exactly round touches not a plane body but onely in a point or pricke. Halfe this humor ſwims in the Glaſſy humor, that ſo it may be nouriſhed from it by tranſpoſition of matter; or rather (ſeeing it is encompaſſed on every ſide with the fiſt coate, that the matter cannot eaſily be ſent from the one into the other) by the benefit of the veſſels produced even unto it as well by the Net-like coate, as by the Grapye; but it is filled with a bright ſpirit on the forepart, which lyes next to the wateriſh humor, and the ſpace of the Apple of the eye.

2 Cryſtallinus, Cryſtalline.

A Philoſophicall Axiome.

Gal. Cap. 5 lib. 10. de uſu part.

Of which thing this is an argument, that as long as a man remaines alive, wee ſee the eye every way full, and ſwollne, but lanke and wrinkled when he is dead; beſides alſo one of the eyes being ſhut, the *Pupilla* of the other is dilated by the ſpirit compelled to fly thither. And alſo for the ſame cauſe the horny coate is wrinkled in very old men, and the *Pupilla* is ſtraitned by the wrinkles ſubſiding into themſelves, which is the cauſe that they ſee litle, or not at all; for by age and ſucceſſe of time the humor is conſumed by litle and litle, the implanted ſpirit vaniſhes away, and ſmaller quantitie of ſpirits flow from the braine, as from a fountaine which is alſo exhauſted. The Horny coate at his originall, that is, in the parts next the *Iris*, ſeemeth to be very nigh the Cryſtalline Humor, becauſe all the coates in that place mutually cohere as touching one another, but as it runnes further out to the *Pupilla*, ſo it is further diſtant from the Criſtalline. Which you may eaſily perceive by Anatomicall diſſection, and the operation of touching or taking away a Catarrhact: for whereas a Catarrhact is ſeated betweene the horny coate, and Cryſtalline humor, the needle thruſt in, is carried about upwards, downewards, and on every ſide through a large and free ſpace, neither touching the horny coate nor Cryſtalline humor, by reaſon theſe bodies are ſevered by a good diſtance filled with ſpirit and a thin humor. The uſe of it is, that it may be like a looking-glaſſe to the facultie of ſeeing carried thither with the viſive ſpirit.

In what place Catarrhacte or ſuffuſion breeds.

3 *Vitreus ſeu Albugineus*, that is Glaſſie, or like the white of an Egge.

The third and laſt humor is the *Vitreus* the glaſſie, or rather Albugineous humor, called ſo, becauſe it is like molten glaſſe, or the white of an Egge. It is ſeated in the hind part of the Cryſtalline humor that ſo it may in ſome ſort breake the violence of the ſpirit flowing from the braine into the Cryſtalline humour, no otherwiſe than the watry humor is placed on the foreſide of the Cryſtalline to hinder the violence of the light and colours entering that way. This glaſſie humor is nouriſhed by the net-like coate.

The veines of the eye.

We have formerly ſpoken ſufficiently of the nerves of the eye: Wherefore it remaines that we ſpeake of the veines. Some of theſe are internall, carried thither with the

Table 3. figure 1. ſheweth the Membranes and humors of the eye by lines drawne after the manner of a true eye.

Figure 2. ſheweth the horny coate with a portion of the Opticke Nerve.

Figure 3. ſheweth the ſame divided by a tranſuerſe ſection.

Figure 4. ſheweth the Vvea *or Grapy coate with a portion of the Opticke Nerve.*

Figure 5. The Grapy coate of a mans eye.

Figure 6. The Horny, Grapy and the Choroides.

Figure 7. The interior ſuperficies of the Grapy coate.

Figure 8. The Poſterior part of the horny coate together with the ſaid Net coate ſeparated (from the Eye.

Figure 9. The coate of the vitreous or glaſſy humor called Hyaloides.

Figure 10. Three humors joyned together.

Figure 11. The forward part of the Chriſtalline.

Figure 12, The Chriſtalline humor covered yet with his coate.

Figure 14. The Chriſtalline of a mans eye.

Figure 15, His Coate.

Fig. 16, The watery humor diſpoſed upon the Chriſtalline round about.

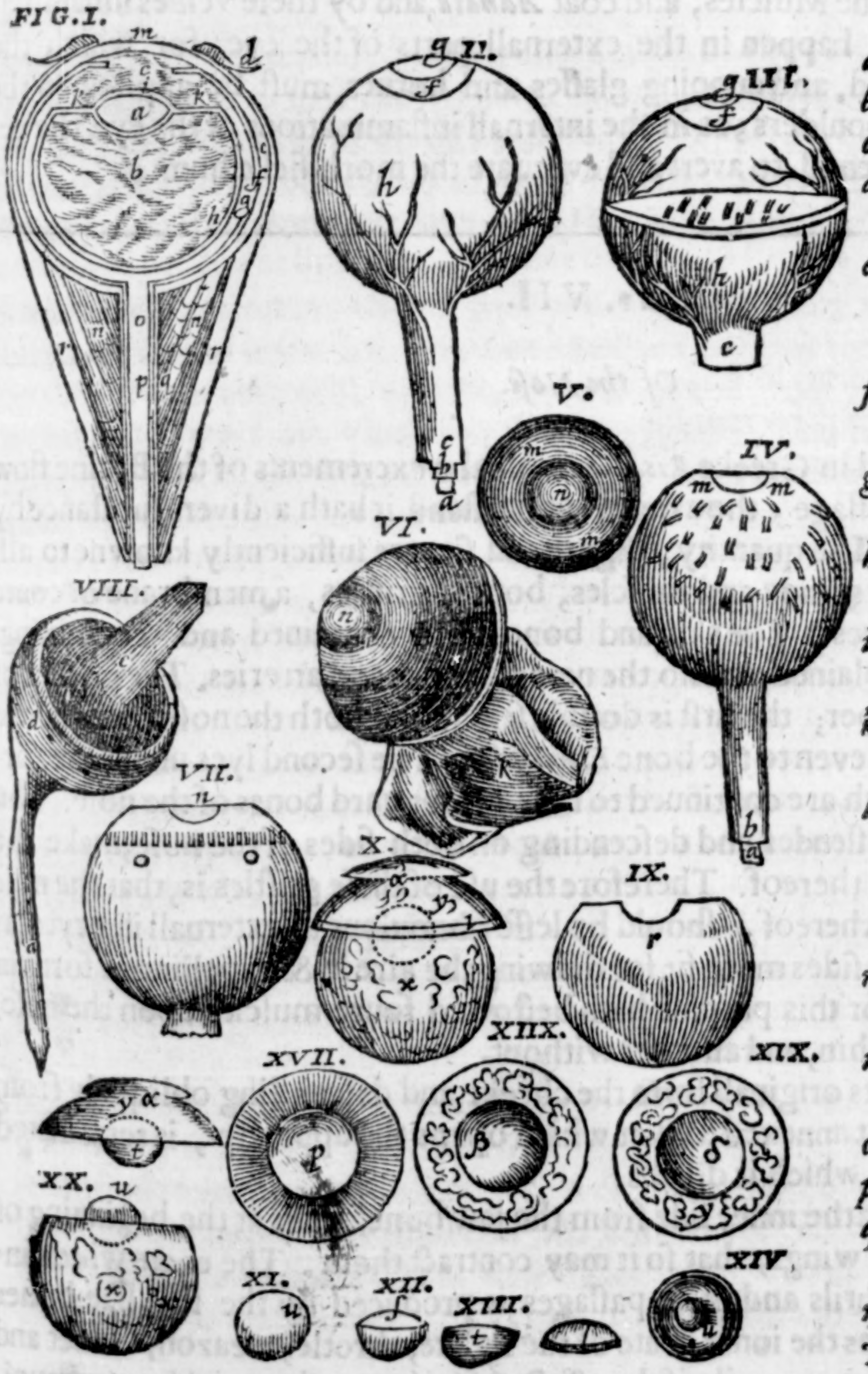
Fig. 17. The hairy proceſſes beamingly ſprinckled through the foreſide of the coate of the (glaſſy humor.

Fig. 18, The foreſide of the glaſſy humor.

Fig. 19. The place of the watery humor.

Fig. 20. The glaſſy humor containeing or comprehending the Chryſtalline.

The figure of the eye.



The explication of the firſt Figure by it ſelfe.

a, The Chriſtalline humor.
b, The Glaſſie humor.
c, The watery humor.
d, The utmoſt coate called *Adnata.*
e, The darke part of the horny Tunicle which is not tranſparant.
f, The Grapy coate called *Vvea.*
g, The Net-like coate called *Retiformis.*
h, The coate of the glaſſy humor cald *Hyaloides.*
i, The coate of the Chriſtalline.
k k, The hairy proceſſes cald *Proceſſus ciliares.*
l, The impreſſion of the Grapy coate where it departeth from the thick coate.
m, The horny coate, a part of the thick coate.
n n, The fat betwixt the Muſcles.
o, The optick Nerve.
p, The *Dura meninx.*
q, The *Pia Mater* or thin Meninx.
r r, The Muſcles.

The explication of the other 19. figures together.

a 2,4,8, The Optick Nerve. *b* 2,4, The thin *Meninx* cloathing the Nerve. *c* 2,3, The thicke thick *Meninx* cloathing the nerve. *d* 8. the poſterior part of the horny coate. *e* 8. The coate called *Retina* gathered together on an heape. *f* 2 3. The rainebow of the eye. *g* 2,3, The leſſer circle of the eye or the *pupilla*. *h* 2,3. Veſſels diſperſed through the *Dura Meninx*. *i* 3,6, The grapy coate, but *i*, in the 3. Fig. ſheweth how the veſſels doe joyne the hard membrane with the grapy coate. *k* 6. The horny or hard membrane turned over. *ll* 3.4, Certaine fibres and ſtrings of veſſels, whereby the grapy coate is tyed to the horny. *m m* 4,5. The impreſſion of the grapy coate where it recedeth or departeth from the horny coate. *n n*,4,5,6,7, The *pupilla* or apple of the eye. *o o*,7, The Ciliar or hairie proceſſes. *p* 7, The beginning of the Grapie coate made of a thinne membrane dilated, but *p*, in the 17. figure ſheweth the ciliar proceſſes ſprinckled through the fore-part of the glaſſie humor. *r* 9, The boſome or depreſſion of the glaſſie humor receiveing the Chriſtalline. *ſ* 12.15. The bredth of the coate of the Chriſtalline, *t* 12, 13, 14,16, The *poſterior* part of the Chriſtalline humor which is ſphericall or round. *u* 11, 14, 20, The fore-part of the ſame Chriſtalline depreſſed *x* 10,20. The amplitude of the glaſſie humor. *y* 10;16,19. The amplitude of the watry humor. *z*.19, The place where the glaſſie humor is diſtinguiſhed from the watry by the interpoſition of the *Hyalæides* or coate of the glaſſie humor. *α* 10, 16, The place where the grapie-coat ſwimmeth in the watrie humor. *β* 18. The cavitie or depreſſion of the glaſſie humor which remaineth when the Chriſtalline is exempted or taken from it. *δ* 19. the cavitie or depreſſion of the watrie humor made by the ſame meanes.

What veines may be opened in what inflammations of the eyes.

the coats of the veſſels of the braine; other ſome externall ſtretched over the externall parts of the eye, as the Muſcles, and coat *Adnata*, and by theſe veines inflammations and reddneſſe often happen in the externall parts of the eye: for which the *Vena pupis* muſt be opened, and cupping glaſſes and hornes muſt be applied to the nape of the necke and ſhoulders; as in the internall inflammations of the eye the cephalike veine muſt be opened to avert and evacuate the morbificke humor.

Chap. VII.

Of the Noſe.

THe Noſe is called in Greeke *Ris*, becauſe the excrements of the Braine flow forth by this paſſage, thou maieſt underſtand it hath a divers ſubſtance by compoſition. The quantity, figure and ſite are ſufficiently knowne to all. But it is compoſed of the skinne and muſcles, bones, griſtles, a membrane or coate nerves, veines and arteryes. The skin and bones both contained and containing, have formerly beene explained, as alſo the nerves, veines and arteries. The griſtles of the Noſe are ſixe in number; the firſt is double ſeperating both the noſe-thrils in the top of the noſe extended even to the bone *Ethmoides*. The ſecond lyes under the former. The third and fourth are continued to the two outward bones of the noſe. The fifth & ſixth being very ſlender and deſcending on both ſides of the noſe, make the wings or moveable parts thereof. Therefore the uſe of theſe griſtles is, that the noſe moveable about the end thereof, ſhould be leſſe obnoxious to externall injuryes, as fractures & bruſes, and beſides more fit for drawing the aire in & expelling it forth in breathing. For nature for this purpoſe hath beſtowed foure muſcles upon the noſe, on each ſide two, one within, and another without.

The Griſtles of the noſe.

The muſcles thereof.

The Externall taketh its originall from the cheeke, and deſcending obliquely from thence and after ſome ſort annexed to that which opens the upper lip, is terminated into the wing of the noſe, which it dilates.

The internall going on the inner ſide from the jaw bone, ends at the beginning of the griſtles that make the wings, that ſo it may contract them. The coate which inwardly inveſts the noſe-thrils and their paſſages, is produced by the ſive-like bones from the *Craſſa meninx*, as the inner coate of the Palate, throtle, weazon, Gullet and inner ventricle, that it is no mervaile, if the affects of ſuch parts be quickly communicated with the braine. This ſame coate on each ſide receives a portion of a nerve from the third conjugation, through the hole which deſcends to the noſe by the great corner of the eye.

The temper, action and uſe.

The noſe in all the parts thereof is of a cold and dry temper. The Action and profit thereof is to carry the aire and oft times ſmells to the mammillary proceſſes, and from thence to the foure ventricles of the braine, for the reaſons formerly ſhewed. But becauſe the mammillary proceſſes being the paſſages of the aire and ſmells are double, & for that one of theſe may be obſtructed without the other, therfore nature hath alſo diſtinguiſhed the paſſage of the noſe with a griſtly partitiõ put between, that when the one is obſtructed, they aire by the other may enter into the braine for the generation and preſervation of the animall ſpirit. The two holes of the noſe firſt aſcend upwards; and then downewards into the mouth, by a crooked paſſage, leſt the cold aire, or duſt ſhould be carryed into the lungs. But the noſe was parted into two paſſages as we ſee, not onely for the forementioned cauſe, but alſo for helping the reſpiration and vindicating the ſmell from externall injuryes, and laſtly for the ornament of the face.

Why the noſe was parted in two.

Chap. VIII.

Of the muſcles of the face.

There number.

NOw we muſt deſcribe the muſcles of the face pertaining as well to the lips as to the lower jaw. Theſe are 18. in number, on each ſide nine, that is, foure of the lips, two of the upper, and as many of the lower. But there belong five to the lower jaw. The firſt of the upper lip being the longer, and narrower, ariſeing from the yoake-bone deſcends by the corner of the mouth to the lower lip, that ſo it may bring it to the upper lip, and by that meanes shut the mouth. The other being shorter and broader, paſſing forth of the hollownes of the cheeke, or upper jaw (by which a portion of the nerves of the third conjugation deſcends to theſe two muſcles, and other parts of the face) ends in the upper part of the ſame upper lip, which it compoſes together with the fleshy pannicle and skin, and it opens it by turning up the exteriour fibers towards the noſe, and shuts it by drawing the internall inwards towards the teeth.

The firſt of the lower lip being the longer and ſlenderer, entring out of that region which is between the externall perforation of the upper jaw (through which on the inner part of the ſame, a nerve paſſeth forth to the ſame muſcles) and the muſcle *Maſſeter,* (of which hereafter) then aſcending upwards by the corner of the mouth, it ends in the upper lip, that ſo it may draw it to the lower.

The other broader and ſhorter begins at the lower part of the Chin and the hollownes thereof, and ends at the lower lip which it makes, opening it within and without by its internall and externall fibers, as we alſo ſaid of its oppoſite. And that I may ſpeake in a word, Nature hath framed three ſorts of Muſcles for the motion of the mouth, of which ſome open the mouth, others shut it, and otherſome wreſt it and draw it awry; but you muſt note that when the muſcles of one kind joyntly performe their functions (as the 2 upper which we deſcribed in the firſt place, on each ſide one which draw the lower lip to the upper, and the muſcles oppoſite to them) they make a right or ſtraight motion; but when either of them moves ſeverally, it moves obliquely, as when we draw our mouth aſide. But theſe muſcles are ſo faſtened and fixed to the skin, that they cannot be ſeperated; ſo that it is no great matter whether you call it a muſculous skin, or a skinny muſcle (Which alſo takes place in the palmes of the hands and ſoles of the feet) but theſe muſcles move the lips, the upper jaw being not moved at all.

Chap. IX.

Of the Muſcles of the lower Iaw.

Their number

The Temporall Muſcle.

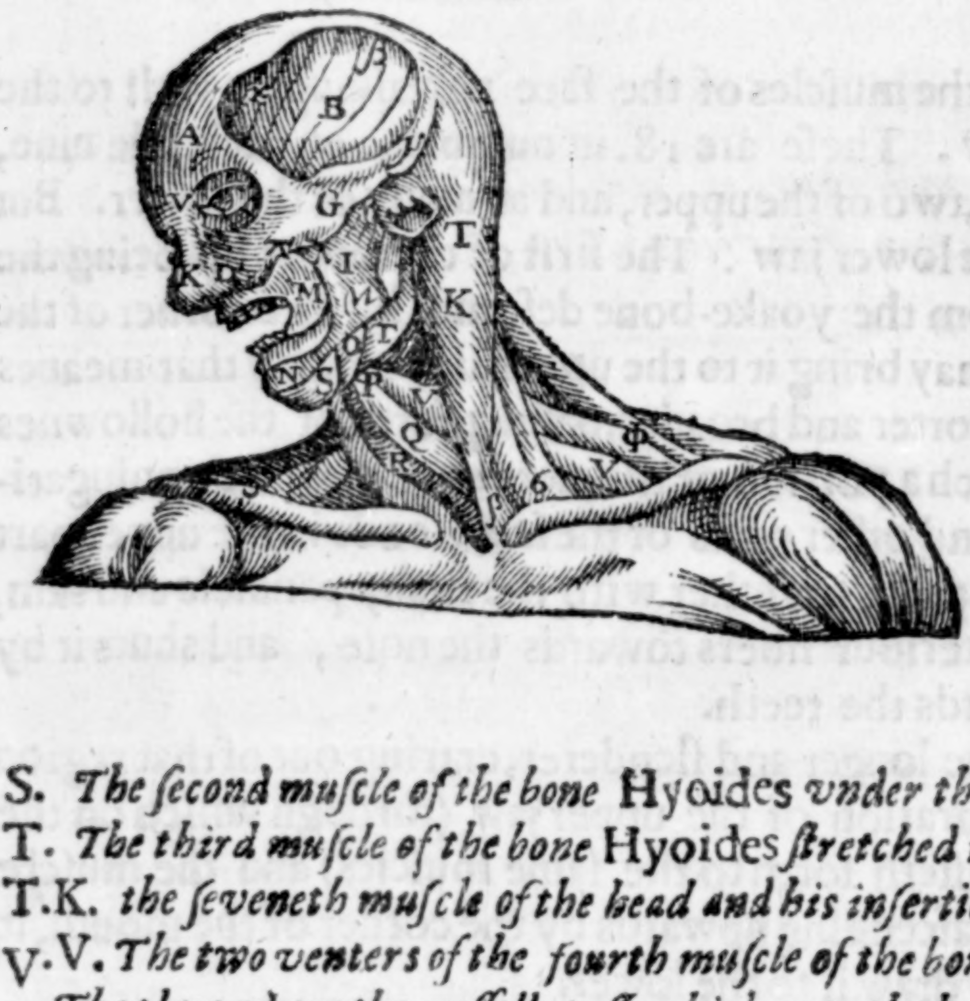
WE have ſaid theſe muſcles are five in number, that is, foure vvhich ſhut it, and one which opens it, and theſe are alike on both ſides. The firſt and greater of theſe foure muſcles vvhich ſhut the Iavv is called *Crotophita* or Temporall muſcle; it ariſes from the ſides of the forehead and *Bregma* bones, and adhering to the ſame and the ſtony bone, it deſcends under the yoak-bone, from vvhence it inſerts it ſelfe to the proceſſe of the lovver Iavv vvhich the Greeks call *Corone*, that it may dravv it directly to the upper, ſo to ſhut the mouth.

Why the wounds of the temporall Muſcle are deadly.

But you muſt note, that this muſcle is tendinous even to his belly, and that it fils and makes both the temples. It is more ſubject to deadly wounds than the reſt by reaſon of the multitude of nerves diſperſed over the ſubſtance thereof, which becauſe they are nere their originall, that is, the braine, they inferre danger of ſuddaine death by a convulſion which uſually follows the affects of this muſcle; but alſo in like manner it cauſes a fever, the Phrenzy and *Coma.*

The Figure of the chiefe muſcles of the Face.

FIG. II.



A. *The muſcle of the forehead and the right fibers thereof.*

B. *The Temporall muſcle.*

α.β.γ. *his ſemicircular originall.*

D. *The muſcle of the upper lip.*

G. *The yoake-bone under which the temporall muſcles paſſe.*

I. *The Maſſeter, or Grinding Muſcle.*

K. *The upper griſtle of the noſe.*

M. *A muſcle forming the cheekes.*

N. *The muſcle of the lower lip.*

O. *A part of the Fifth muſcle of the lower Iaw called* Digaſtricus, *that is, double bellied.*

Q. R. *The firſt muſcle of the bone* Hyoides *growing unto the rough Artery.*

S. *The ſecond muſcle of the bone* Hyoides *under the Chin.*

T. *The third muſcle of the bone* Hyoides *ſtretched to the Iaw.*

T.K. *the ſeveneth muſcle of the head and his inſertion at* T.

V.V. *The two venters of the fourth muſcle of the bone* Hyoides.

Φ. *The place where the veſſells paſſe which go to the head, and the nerves which are ſent to the Arme.*

Therefore that it ſhould be leſſe ſubject or obvious to externall injuryes, Nature hath, as it were, made it a retiring place in the bone, and fortified it with a wall of bone raiſed ſomewhat higher about it. The other Muſcle almoſt equall to the former in bignes, being called the *Maſſeter*, or grinding muſcle, makes the Cheeke, it deſcends from the loweſt part of the greateſt bone of the orbe (which bends it ſelfe as it were back, that it may make part of the yoake bone) and inſerts it ſelfe into the lower Iaw, from the corner thereof to the end of the root of the proceſſe *Corone*, that ſo it may draw this Iaw forward and backward, and move it like a hand-mill.

The *Maſſeter*, or grinding muſcle.

Wherefore nature hath compoſed it of two ſorts of fibers, of the which ſome from the neeke (the cheek in that place under the eyes ſtanding ſomewhat out like an aple ariſing from the concourſe of the greater bones of the orbe and upper jaw) deſcend obliquely to the corner and hinder part of the lower jaw, that it may move it forwards. Otherſome ariſe from the lower part of the ſame yoak-bone, and deſcending obliquely interſect the former fibers after the ſimilitude of the letter X, and inſert themſelves into the ſame lower jaw at the roots of the proceſſe *Corone*, that ſo they may draw it back. Truely by reaſon of theſe contrary motions it is likely this muſcle was called the *Maſſeter* or grinder.

The third, which is the round Muſcle, ariſes from all the Gums of the upper jaw, and is inſerted into all the gummes of the lower, inveſting the ſides of all the mouth with the coate, with which it is covered on the inſide, being otherwiſe covered on the outſide with more fat than any other muſcle. The action thereof is, not onely to draw the lower Iaw to the upper, but alſo as with a Shovell to bring the meat diſperſed over all the mouth under the teeth, no otherwiſe then the tongue drawes it in.

The round muſcle.

The fourth being ſhorter and leſſe than the reſt ariſing from all the hollownes of the winged proceſſe of the Wedge-bone, is inſerted within into the broadeſt part of the lower Iaw, that ſo in like manner it may draw the ſame to the upper. This is the muſcle through whoſe occaſion, we ſaid this lower iaw is ſometimes diſlocated.

The leſſer muſcle of the lower Iaw.

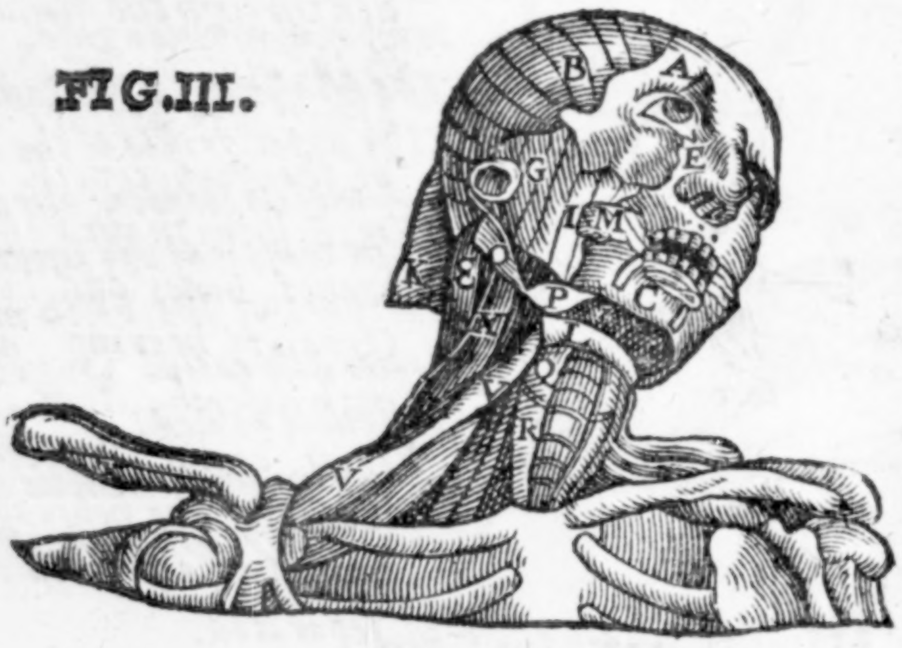
The fifth and laſt muſcle of the lower jaw from the proceſſe *ſtyloides* of the ſtony bone, aſcends to the forepart of the Chin, nere to the connexion of the two bones of this Iaw, to draw this Iaw downewards from the upper in opening the mouth. This muſcle is ſlender and Tendinous in the midſt, that ſo it might be the ſtronger, but it is fleſhy at the ends. All theſe Muſcles were made by the ſingular providence of nature and ingrafted into this part for the performance of many uſes and actions, as biting aſunder, chawing, grinding and ſevering the meat into ſmall particles, which the tongue by a various and harmeleſſe motion puts under the teeth. Thus much I thought good to ſay of the parts of the face, as well containing as contained.

The fift and laſt muſcle.

The uſe of the ſe mentioned muſcles.

The Figure of the Muſcles of the lower Iaw.

FIG.III.



A. *A hole in the forehead bone in the brimme of the ſeate of the eye, ſending a ſmall nerve of the third paire to the muſcles of the fore-head and the upper eye-brow.*

B. *The Temporall muſcle.*

Chap. X.

Of the Eares and Parotides *or kernels of the Eares.*

The Eares are the Organs of the Senſe of hearing. They are compoſed of the skin, a little fleſh, a griſtle, veines, arteries and nerves. They may be bended or folded in without harme, becauſe being griſtlely, they eaſily yeild and give way; but they would not doe ſo, if they ſhould be bony, but would rather break. That lap at which they hang pendants and Iewels, is by the ancients called *Fibra*; but the upper part *pinna*. They have beene framed by the providence of nature into twining paſſages like a Snailes ſhell, which as they come neerer to the *foramen cæcum*, or blind hole, are the more ſtraitened, that ſo they might the better gather the aire into them, & conceive the differences of ſounds and voices, and by little and little leade them to the membrane.

The nature and compoſition of the eares.

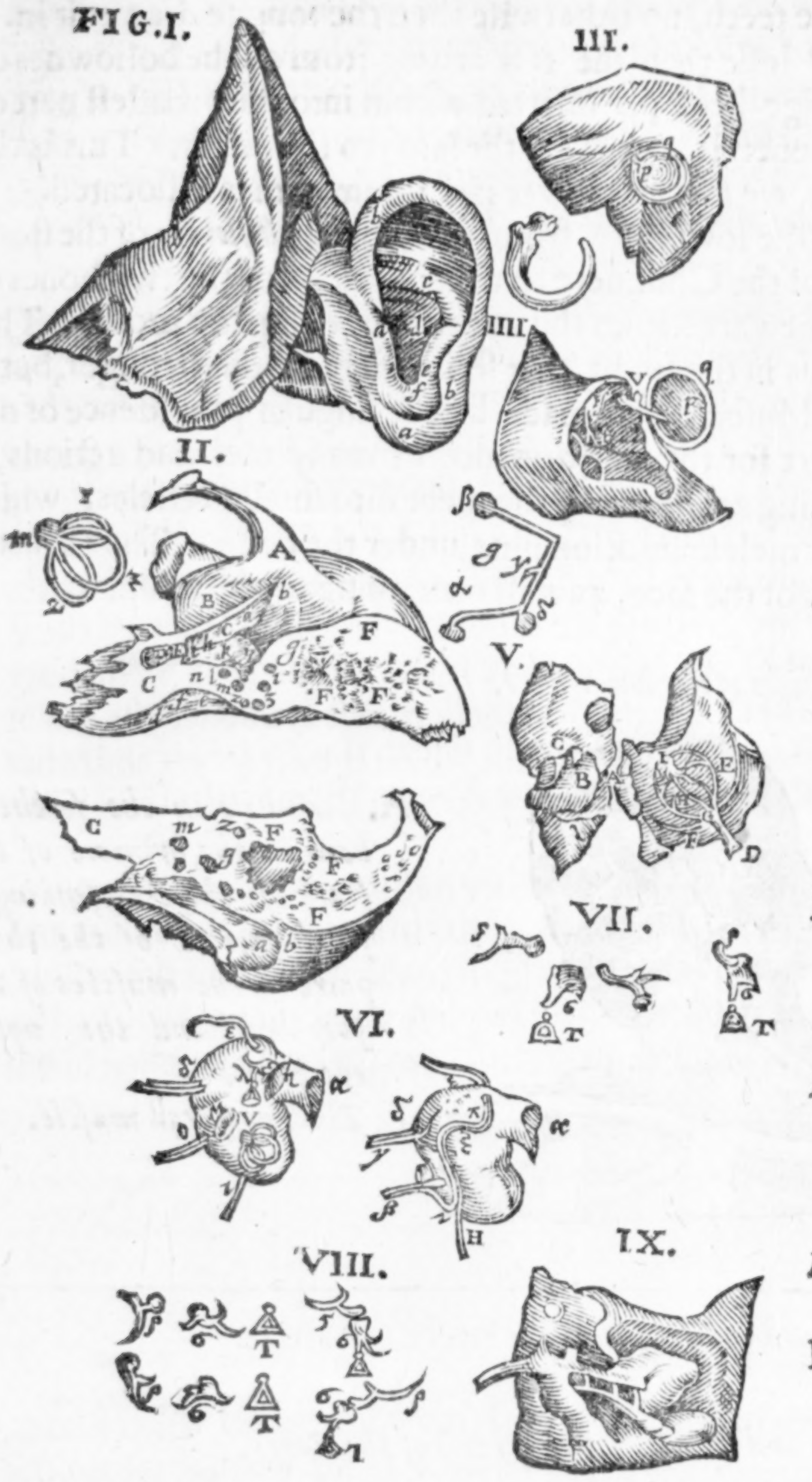
What the *Fibra* and *pinna* are.

The figure and the reaſon thereof.

This membrane which is indifferently hard hath growne up from the nerves of the fifth conjugation, which they call the auditory. But they were made thus into crooked windings, leaſt the ſounds ruſhing in too violently ſhould hurt the ſenſe of hearing. Yet for all this we oft find it troubled and hurt by the noiſe of thunder, Guns and Bels. Other wiſe alſo leſt that the aire too ſodainely entring in ſhould by its qualitys, as cold, cauſe ſome harme: and alſo that little creeping things and other extraneous bodys as fleas & the like, ſhould be ſtaied in theſe windings and turnings of the waies, the glutinous thicknes of the cholerick excrement or eare-waxe hereunto alſo conduceing, which the braine purges and ſends forth into this part, that is, the auditory paſſage framed into theſe intricate Mæanders.

For what uſe the eare-waxe ſerves.

The Figure of the eares and bones of the auditory paſſage.



Tab, 10. ſheweth the eares and the divers internall parts thereof.

Fig. 1. ſheweth the whole external eare, with a part of the Temple bone.

Fig. 2. ſheweth the left bone of the Temple divided in the middeſt by the inſtrument of hearing, whereabout on either ſide there are certaine paſſages heere particularly deſcribed.

Fig. 3, and 4. ſheweth the three little Bones.

Fig. 5. ſheweth a portion of the bone of the temples which is ſeen neere the hole of Hearing divided through the middeſt, whereby the Nerves, Bones and Membranes may appeare as Veſalius of them conceiveth.

Fig. 6. ſheweth the Veſſels, Membranes, Bones and holes of the Organ of hearing, as Platerus hath deſcribed them.

Fig. 7, and 8. ſheweth the little bones of the hearing of a man and of a Calfe, both ioyned and ſeparated.

Fig. 9. ſheweth the Muſcle found out by Aquapendens.

For the particular declaration ſee *D. Crookes* Anatomie, pag. 577.

For what uſe the membrane ſtretched under the auditory paſſage ſerves.

But that we may underſtand how the hearing is made, we muſt know the ſtructure of the organ or inſtrument hereof. The membrane which we formerly mentioned to conſiſt of the auditory nerve, is ſtretched in the inſide over the auditory paſſage like as the head of a Drum. For it is ſtretched and extended with the Aire, or auditory ſpirit implanted there, & ſhut up in the cavity of the mammillary proceſſe and *foramen cæcum*, that ſmitten upon by the touch of the externall aire entring in, it may receive the object, that is the ſound, which is nothing elſe then a certaine quality ariſing from the aire beaten or moved by the colliſion, and conflict of one or more bodyes.

What ſound is.

Such a colliſion is ſpred over the aire, as the water which by the gliding touch of a ſtone produces many circles and rings one as it were riſing from another. So in rivelets running in a narrow channel, the water ſtrucken and as it were, beaten back in its courſe againſt broken, craggy and ſteep rocks, wheels about into many turnings: this colliſion of the beaten aire flying back diverſe waies from arched and hollow roofed

The cauſe of an echo.

roofed places, as Dens, Ciſterns, Wells, thick Woods and the like, yeilds and produces a double ſound, and this reduplication is called an Echo. Wherefore the hearing is thus made by the aire, as a medium, but this aire is twofold, that is, externall and internall.

The 3 bones of the auditory paſſage.

The exteriour is that which encompaſſes vs, but the interiour is that which is ſhut up in the cavity of the mammillary proceſſe and *foramen cæcum*, which truly is not pure and ſole aire, but tempered and mixed with the auditory ſpirit. Thence proceeds the noiſe or beating of the Eares, when vapours are there mixed with the aire inſteed of ſpirits, whereby their motion or agitation is perturbed and confuſed. But neither doe theſe ſuffice for hearing, for nature for the more exact diſtinction of ſounds hath alſo made the little bones, of which one is called the *Incus* or anvill, another the *Malleolus* or hammer, the third the *Stapes* or ſtirrop, becauſe the ſhape thereof reſembles a German ſtirrop. Alſo it may be called *Deltoides*, becauſe it is made in the ſhape of the Greeke letter Δ.

Their uſe.

They are placed behind the membrane; wherefore the anvill and hammer moved by the force of the entrance of the externall aire, and beating thereof againſt that membrane, they more diſtinctly expreſſe the difference of ſounds, as ſtrings ſtretched within under the head of a Drum; as for example, theſe bones being more gently moved repreſent a low ſound to they common ſenſe & faculty of hearing, but being moved more vehemently and violently, they preſent a quick and great ſound; to conclude, according to their diverſe agitation, they produce diverſe and different ſounds.

whence the difference of ſounds.

The Glandules ſhould follow the Eares in the order of Anatomy, as well thoſe which are called the emunctoryes of the braine, that is, the *Parotides* (Which are placed as it were at the lower part of the eares) as theſe which lye under the lower Iaw, the muſcles of the bone *Hyoides* & the tongue, in which the *Scrophulæ* and other ſuch cold abſceſſes breed. It ſhall here ſuffice to ſet dovvne the uſe of all ſuch like Glandules.

Therefore the *Parotides* are framed in that place by nature, to receive the virulent and maligne matter ſent forth by the ſtrength of the braine, by the veines and arteries ſpred over that place. The reſt ſerve to ſtrengthen the diviſion of the veſſels, to moyſten the ligaments and membranes of the Iaw, leſt they shoud be dryed by their continuall motion. Their other conditions and uſes are formerly handled in our firſt booke of Anatomy.

Chap. XI.

Of the bone Hyoides, *and the muſcles thereof.*

The reaſon of the name.

The compoſition.

THe Subſtance of the Bone *Hyoides* is the ſame with that of other bones, The figure thereof imitates the greek letter *υ* from whence it took the name, (as alſo the name ὑψιλοειδὴς; and from the letter λ it is in like ſort called λαμβδοειδὴς; by ſome it is ſtiled *Os Gutturis* and *os Linguæ*, that is, the Throat bone and Tongue bone. The compoſition thereof conſiſts of many bones joyned into one by the interpoſition of griſtles.

The ſite.

This bone is bigger in beaſts and compoſed of more bones, and that not only by the intercourſe of griſtles, but alſo of ligaments. It is ſeated with its baſis (being gibbous on the forepart for conſtancy, and arched on the inſide that it might receiue and containe the root of the tongue) upon the upper part of that griſtle of the throtle which is called *ſcutiformis* or Sheild-like, (for this ſeemes to prop it up by the ſtrength of two proceſſes riſing at the baſis thereof) and the root of the tongue. From this baſis it ſends forth two hornes to the ſides of the tongue on each ſide one, which in men are tyed to the Appendix *ſtyloides* by ligaments ſent from it ſelfe. Contrary then it is in beaſts, who have it of many bones united as we ſaid, by the intercourſe of ligaments even to the root of the *ſtiloides*. Wherefore this bone hath connexion with the forementioned parts, and other hereafter to be mentioned. It hath the ſame temper as other bones have. The uſe of it is, to miniſter ligaments to certaine muſ-

The temper and uſe.

cles of the tongue, and inſertion as well to the two foremoſt and upper muſcles of the throtle, as to its owne, of which we will now treat.

The muſcles of the bone *Hyoides*.

The muſcles of the bone *Hyoides*, according to the opinion of ſome are eight, on each ſide foure; of which there be two, one of which *Galen* refers to the common muſcles of the *larinx* or throtle; and the other to thoſe which move the Shoulder-blade upwards. Howſoever it be, the firſt of the foure before mentioned ariſes from the Appendix *Styloides*, and paſſing over the Nervous ſubſtance of the muſcle opening the lower Iaw, is inſerted into the hornes of the bone *Hyoides*. This muſcle is very thin, yet ſomewhat broad, the which in that reſpect may eaſily be cut, unleſſe you have a care in ſeparating the muſcle which opens the lower Chap. The ſecond aſcends obliquely from the upper part of the ſhoulder-blade nere the production thereof called *Coracoides*, to the beginnings of the hornes of the ſaid bone *Hyoides*. This is round and nervous in the midſt that ſo it might be the ſtronger, as that is which we formerly ſaid opens the lower Iaw; and it is referd by *Galen* amongſt thoſe which move the ſhoulder-blade upwards. The third ariſes from the upper part of the *ſternon*, and is inſerted at the roote and baſis of the bone *Hyoides*; yet *Galen* refers it to the common muſcles of the *Larinx*; whoſe opinion takes place rather in beaſts, than in man, ſeeing in man this muſcle cannot be found either to proceed, or be inſerted into the throtle, as it is in beaſts. The fourth and laſt deſcends within from the chin to the root of the bone *Hyoides*. The firſt of theſe muſcles with its companion or partner moves the bone *Hyoides* upwards; the ſecond downewards; The third backwards; and the fourth forewards. I would declare whence theſe muſcles have their veſſells, had I not abundantly ſatisfied that thing, when I treated of the diſtribution of the nerves, veines and arteries.

The action of theſe muſcles.

Chap. XII.

Of the Tongue.

What kinde of fleſh the tongue hath.

THE tongue is of a fleſhy, rare, looſe and ſoft ſubſtance; it enjoyes fleſh of a different kind from the reſt of the fleſh, as chiefly appeares when you cut it from the firſt originall of the muſcles thereof; which thing hath moved ſome, that they have made a fourth kind of fleſh proper to the tongue and different from the reſt, *viz.* the Fibrous, muſculous, and that of the bowells. The quantity thereof is ſuch that it may be conteined in the mouth, and eaſily moved to each part thereof. The figure of it is triangular, which it rather expreſſes in the baſis, which is at the root of the bone *Hyoides*, than in its point, or forepart, where from a triangle it becomes more dilated. It is compoſed of a membrane (which it hath from that which lines all the inſide of the mouth) muſcles 4. nerves two on each ſide, the one whereof is ſent from the third conjugation, into the coate thereof; the other from the ſeaventh is ſent into the muſculous ſubſtance even to the end thereof for motions ſake; ſo that thoſe ſenſificke nerves from the third conjugation onely give to judge of taſtes, compoſe the coate, and touch or enter not the fleſh. Beſides it is compoſed of veines and arteries on each ſide one, which it receives from the externall Iugular and *Carotides*, running manifeſtly to the end thereof on the lower ſide, that ſo they might be eaſily opened in the diſeaſes of the mouth and throtle; they commonly terme theſe the *Venæ nigra* or blacke veines.

The quantity.

The figure.

Compoſure.

The nerves.

The muſcles of the tongue.

The muſcles of the tongue are abſolutly ten, on each ſide five. The firſt narrow at the beginning, and broader at the end, deſcends into the upper ſide of the tongue from the Appendix *Styloides*, and together with its copartner drawes it upwards. The ſecond hath its originall within from the lower jaw about the region of the Grindinge teeth, and is inſerted into the lower ſide of the tongue, the which with its partner drawes it downeward. The third proceeds from the inner part of the Chin and goes to the root of the tongue, that when need requires it may put it forth of the mouth. The fourth the greateſt and broadeſt of them all, compoſed of all ſorts of fibers, paſſes forth from the baſis of the bone *Hyoides*, and ends at the lower part of the tongue, which with its companion plucks it backe into the mouth. The fiſt & laſt moſt uſually ariſes from the upper part of the hornes of the bone *Hyoides* and goes to the roots of the tongue betweene the two firſt, that it may move it to the ſides of the mouth. The temper thereof, as of all other fleſh, is hot and moiſt. The firſt action & commodity therof is, to be the organ of the ſenſe of taſting, wherfore it was made fungous & ſpongy, that by reaſon of the rarity of it, it might more eaſily admit the taſts conjoyned with the ſpettle, as a vehicle. Another to be an inſtrument to diſtinguiſh the voice by articulate ſpeech, for which it was made movable into each part of the mouth. The third is to be a helpe to chaw & ſwallow the meat. For which cauſe it is like a ſcoope or diſh with which wee throw backe the corne into the mill, which hath ſcaped grinding. And becauſe, when the tongue is dry, it is leſſe nimble & quicke to performe its motions, as appeares by thoſe which can ſcarſe ſpeake by reaſon of thirſt, or a burning ſeaver: therefore nature hath placed very ſpongy glandules at the roots therof, on each ſide one, which like ſponges ſucke and receive, both from the braine & other places a wateriſh and ſpettlely humor, with which they humect and make more glib, not onely the tongue, but alſo the other parts of the mouth, as the throate and jawes; theſe glandules are called the *Tonſillæ*, or Almonds of the throate.

The temper, action, and manifold uſe of the tongue.

The uſe of the glandules placed at the roots of the tongue.

CHAP. XIII.

Of the Mouth.

THe mouth is that capacity which bounded with the cheekes & lips containes within its precincts the teeth, tongue, and the beginnings of the throttle and gullet. Therfore the uſe of the mouth is to conteine the tongue, & ſerve it in the fitter performance of its actions; & although many parts hereof have bin formerly handled, as the lips, teeth, Iawes, tongue, almonds, & paſſages of the palate comming from the noſe, yet it remaines, that we declare, what the palate, the *Gargareon*, or Vvula the *Pharinx*, & *fauces* or Chops are. The palate (or as it is commonly called, the Roofe of the mouth) is nothing elſe but the upper part of the mouth bounded with the teeth gums & upper Iaw. In which place the coate common to the whole mouth, is made rough with divers wrincles, that the meats put up & down between the tongue & the Palate might be broken & chawed more eaſily by that inequality and roughnes. If any would finde the nerves, which deſcend into the palat from the fourth conjugation, let him ſeparate that coat & caſt it from the fore to the hind part of the mouth; for ſo he ſhal find them at the ſides & hinde parts of the bones of the Palate, which incompaſſe the palate, & at the beginning of the inner holes of the mouth, which deſcend from the noſe, & region of the productions of the wedgbone called the Saddle. Theſe holes or paſſages are open, that we may breath the better when we ſleep, & that when the noſe is not well, the excrements which ſeeke their paſſage by it, may be eaſilier drawn away by the mouth. This ſame coate is woven with nervous fibers, that, like the tongue, it might judge of taſts; theſe fibers cõpoſe a coat that hath a middle conſiſtence betwixt ſoft & hard. For if it ſhould have beene any harder, like a bone or griſtle, it would have been without ſenſe, but if ſofter hard, acride and ſharpe meats would have hurt it.

What it is.
The uſe.

What the palat is.

The nerves thereof.

Why the holes of the palate are open.

What kinde of coate the palat hath.

CHAP. XIIII.

Of the Gargareon, *or Vvula.*

BY the *Gargareon* we underſtand a fleſhy & Spongy body, in ſhape like a pine apple, hanging directly down at the further end of the palate & baſis of the bone *Ethmoides* where the two holes of the palate come from the noſe, above the entrãce of the throttle. This little body is ſcituate in this place, to breake the violence of the aire drawne in by breathing, & that by delay it might in ſome ſort tẽper & mitigate it by the warmeneſſe of the mouth. Beſides, that it might be as it were the *Plectrũ*, or quil of the voice, ſo to diffuſe the fuliginous vapour ſent forth in breathing that it may be diſperſed over al the mouth, that reſounding from thence it may be articulate, & by the motion of the tongue diſtinguiſhed & formed, into a certaine voice. Which uſe is not ſmall, when we ſee by experience that ſuch as have this particle cut away, or eaten or corrupted by any accident, have not onely their voyce vitiated and

What the *Gargareon*, or Vvula is.

The ſite and manifold uſe thereof.

The diſcommodities that enſue the loſſe of the Vvula.

What the *Pharinx* and *fauces* are.

depraved, but ſpeake ill favouredly, and as they ſay, through the noſe; and beſides, in proceſſe of time they fall into a conſumption by reaſon of the cold aire paſſing downe before it be qualified. This ſame particle, is alſo a meanes to hinder the duſt from flying downe through the weazon into the Lungs. By the ***Pharinx*** and *fauces* is ment the inner & backe part of the mouth, ſet or placed before the entrance of the Throttle & Gullet; being ſo called, becauſe that place is narrow & ſtraite, that as it were by theſe ſtraits, the aire drawn in by the mouth might be forced downe by the Throtle, and the meat into the Gullet.

CHAP. XV.

Of the Larinx *or Throttle.*

What is ment by the *Larinx.*

The magnitude, figure and compoſure.

The deſcription of the 3 griſtles of the *Larinx.*

Whence the infinite variety of voices proceed.

The muſcles of the *Larinx.* Their number

A notable hiſtory.

FIrſt we muſt ſhew what is ment by the *Larinx* or throttle, then proſequute the other cõditions of it after our accuſtomed maner. Therfore by the *Larinx* we underſtand nothing els in this place, than the head & extremity of the rough Artery, or weazon, which comes neerer to Griſtlely ſubſtance, then to any other. The quantity therof is ſufficiently large, yet divers according to the diverſity of bodies. It reſembles in ſhape the head of a Germane pipe. The compoſure of it conſiſts of 18. muſcles, on each ſide nine, which as they are like in quantity, ſo alſo in ſtrength & action; of three griſtles, veines, arteries and nerves, as we ſhewed, when we ſpoke of the diſtribution of the veſſels; as alſo of a double coate, the one externall, the other internall, as we ſhewed when we ſpoke of the weazon. Theſe three Griſtles are joyned together by certaine Ligaments & muſcles; the formoſt griſtle, which alſo is the greater is called by the Greekes θυρεοειδὴς, in Latine commonly *Scutiformis*, that is ſheild-like, becauſe it reſembles a ſheild. The ſecond being the hinder and middle in magnitude, wants a name, wherfore it is called the *innominata* or nameles griſtle. The laſt & leaſt which notwithſtanding may be parted into two, ſo lyes upon the edges of the other, that it reſembles the mouth of an oyle pot, or a pitcher, wherupon the Greekes call it *Arytenoides*. Theſe griſtles thus fitted amongſt themſelves utter a diſtinct voice, by the benifit of the *Epiglottis*, or After tongue, & alſo of the muſcles opening & ſhutting, dilating & cõpreſſing them, whence proceed infinite varieties of voyces. For thus when they are opened and dilated they yeeld a heavy, or dull ſound; when they are ſhut or drawn together, a quick, or ſharpe ſound, and to conclude, they make it infinite wayes different according to the infinite variety of the dilatation, or conſtriction thereof. Therfore becauſe it was fit theſe griſtles ſhould be moveable, eſpecially the *Arytenoides*, & Thyroides, nature hath put to them on each ſide 9 muſcles, of which three are common and 6 proper. The firſt of the common lying hid under the third muſcle of them that move the bone *Hyoides*, ariſes from the root of the ſame bone, & by an oblique deſcent inſerts it ſelfe at the baſis of the ſhield-like griſtle, to dilate it upwards & downwards. The ſecond aſcends obliquely from the inner part of the *ſternon* according to the length of the weazon (whence it is called *Bronchius*) to the bottom & ſides of the ſame ſhield-like griſtle, that it may open and dilate it with its wings. This muſcle is ſeen from the firſt originall therof, even a great part of the way ſtraitly to cohere with the third muſcle of the bone *Hyoides*; therfore under each of the muſcles, there is a glãdulous body ſpred about the fore & upper part of the weazon, on that place where it applies it ſelf to the throttle; this body although it reſemble a fleſhy ſubſtance, yet it is a glandule, which being pluckt away by a certaine Emperike taking upon him to cure the kings evil, cauſed a defect of voice on one ſide, becauſe be pulled away the recurrent nerve lying upon that glandule as it goes to the throttle, as *Galen* reports, *Lib. de locis affectis*. The third & laſt ariſes from the part of the *Vertebra's* of the neck lying tranſverſly upon the ſides of the gullet, & ends at the wings & ſides of the ſhield-like griſtle, that it may tye it more ſtraitly to the ſecond Griſtle. But theſe three are called cõmon muſcles, becauſe they take their original from ſome other place than ÿ throttle that ſo they may be inſerted into ſome part therof; for they are called the proper muſcles which ariſe from the Throttle it ſelf, which we have ſaid to be 6. on each ſide. The firſt of which ariſing from the fore part of the ſecond griſtle, makes a circle under the baſis of the ſheld-like griſtle; whileſt aſcending obliquely to the baſis therof, it is afterwards inſerted in a part of it, ſo to ſtrengthen and dilate it. The ſecond in like manner ariſing from the ſecond griſtle, from that place where it adheres to the firſt, it runnes obliquely croſſing the firſt to the inner and forepart of the griſtle *Thyroides* neere to the baſis thereof, that it may joyne it to the ſecond. The third from the hinde baſis of the ſecond griſtle aſcends directly to the baſis of the third griſtle *Arytenoides*, that with the ſecond muſcle it may open & ſhut it. The fourth aſcends from the ſides of the ſecond griſtle, neere the originall of the ſecond muſcle, to the ſides of the *Arytenoides*, that with the ſecond muſcle it may open and ſhut it. The fift ariſes from the inner midle of the ſheild-griſtle, and ends in the fore part of the *Arytenoides* at the inſertion of the fourth muſcle, that ſo it may preſſe down the ſaid griſtle.

The ſixt and laſt aſcends by the hinde baſis of the *Arytenoides* to the fore baſis of the ſame, to preſſe it downe. But you muſt note, that all ſuch muſcles, as ariſe from below upwards, receive branches from the recurrent, but eſpecially thoſe who open and ſhut the griſtle *Arytenoides*. But the ſite, temper, connection, and uſe of the throtle may eaſily be knowne by that we have ſaid before: Although it be a thing very full of difficulty to ſearch out and demonſtrate all the conditions of the organicall parts, by reaſon of the diverſitie of their compoſition. Wherefore hence forward concerning the ſubſtance, temper, and other circumſtances of ſuch parts as we ſhall omit; you may have recourſe to thoſe things which we have written in the Demonſtration of the ſimple and ſimular parts, of which theſe organicall are compoſed; as if any ſhould aske of what temper the *Larinx* is, you ſhall anſwere, of a colde, dry, and hot, and moiſt, becauſe it conſiſts both of a griſtlely and fleſhly ſubſtance. Hee which reckons up all the parts of the mouth, muſt not omit that griſtlely and membranous body which ariſes from the roots of the tongue, which that it might be more quicke for motion, that is, whereby it might be more eaſily erected and depreſſed (for thoſe things which are more ſoft doe continually ſlide away, but thoſe which are too hard cannot be bended) it was convenient it ſhould be neither too hard nor too ſoft, that it might be erected whileſt we breath, but depreſſed when wee ſwallow. It is a principall inſtrument of the voyce, for it cannot be well articulated unleſſe the way were ſtraite. Therefore it ſtraitens that way, and the paſſage of the griſtles of the throttle, but ſpecially the *Arytenoides*; it is alwayes moiſt by a certaine native, and inbred humiditie; wherfore if it happen to be dried by a fever, or any other like accident the ſpeach is taken away. It is bound on both ſides by the common membrane of the mouth to the ſides of the *Arytenoides* even to the backe part thereof, that ſo like a cover it may open and ſhut the orifice of the throtle, that none of the meat and drinke in ſwallowing may fall into the weazon, in ſuch aboundance as may hinder the egreſſe and regreſſe of the aire. For we muſt not thinke that this body doth ſo cloſely ſhut the orifice of the throttle, but that ſome ſmall quantitie of moiſture alwayes runnes downe by the inner ſides, as the walles thereof, to moiſten the lungs; otherwiſe *Eclegma's* ſhould be of no uſe in the diſeaſes of the Cheſt. And becauſe that this litle body is partaker of voluntarie motion, therefore according to the opinion of ſome there are foure muſcles beſtowed upon it, two which may open it and two that ſhut it, on each ſide one. The opening muſcles deſcend from the roote of the bone *Hyoides*, and in their inſertion growing into one they are terminated in the roote of this body, that is, the *Epiglottis* in the backe part thereof. The ſhutting muſcles (in thoſe creatures where they are found) ariſe on the inſide betweene the coate & griſtle thereof. Truly I could never obſerve and finde theſe foure muſcles in a man, though I have diligently and earneſtly ſought for them, but I have alwayes obſerved them in beaſts. Therefore ſome have boldly affirmed that this litle body in ſwallowing lyes not upon the orifice of the Throttle, unleſſe when it is preſſed downe by the heavines of ſuch things as are to be ſwallowed; but that, at all other times by reaſon of the continuall breathing it ſtands upright, the Throttle being open. There remaine as yet to be conſidered, two ſmall boſomes, or cavities, or rather fiſſures which nature hath hollowed in the very throttle under the *Epiglottis*, on each ſide one, that if by chance any of the meat or drink ſhould fal, or ſlip aſide in the *Larinx*, it might be there ſtayed & reteined. Beſide that, the Aire too violently entring, ſhould be in ſome ſort broken by theſe clifts, or chinkes, no otherwiſe than the blood and ſpirit entring into the heart through the *Auriculæ* or Eares thereof.

Whence the muſcles of the Throttle have their nerves.

The *Epiglottis* or After-tongue.

Of potable things ſome-what alwayes falls upon the Lungs.

The muſcles of the *Epiglottis*.

The uſe of the cavities or fiſſures of the Throttle.

Chap. XVI.

Of the Necke and the parts thereof.

First we will define what the neck is, then proſequute the parts therof aſwel proper, as common, eſpecially thoſe of which we have not as yet treated. For it were ſuperfluous to ſpeake any more of the skin, the fleſhy pannicle the veines, arteries, nerves, gullet, weazon & muſcles aſcending & deſcending to the parts into which they are inſerted alongſt the necke; wherefore you muſt not expect that we ſhould ſay any thing of the neck, more than to deſcribe the *Vertebra* or rack-bones, being the proper parts therof, & the ligaments aſwell thoſe proper to the neck, as thoſe which it hath in common with the head; & laſtly the muſcles, aſwel thoſe it hath in common with the head & cheſt, as thoſe of its own. Therfore the neck is nothing elſe, then a part of the head, which is conteined between the nowle bone & the firſt *vertebra* of the back. Firſt in the neck the *Vertebra's* muſt be conſidered, & we muſt ſhew what they have proper & peculiar, & what common amongſt themſelves, that we may the more eaſily ſhew the originall and inſertion of the muſcles growing out of them & ending in them. The neck conſiſts of ſeven *Vertebræ* or Rack-bones, in which you muſt conſider their proper body; and than the holes by which the ſpinall marrow paſſes; thirdly the *Apophyſes* or proceſſes of the *Vertebræ*; fourthly the holes through which the nerves are diſſeminated into other parts from the ſpinal marrow, & beſides the perforations of the tranſverſe productions by which the veines, & arteries which we cal *Cervicales* aſcend alongſt the necke, & laſtly the connexion of theſe ſame *vertebræ* or Rack-bones. For the firſt, by the body of the *vertebræ*, we underſtand the forepart therof upon which the gullet lyes. For the hole, that is not alwaies the largeſt in thoſe *vertebræ* which are nigheſt the head; but it is alwayes encompaſſed with the body of the *vertebra*, & beſides with three ſorts of proceſſes, except in the firſt Rack-bone, that is right, tranſverſe & oblique. By right we underſtand theſe extuberancies in the Racke-bones of the necke which are hollowed directly in the upper part of them & riſe up creſted on each ſide to ſuſteine and receive the baſis of the Rack-bone which is ſet upon it. By the oblique proceſſes, wee underſtand the bunchings out by which theſe Rack-bones are mutually knit together by *Ginglymos*; theſe are ſeated between the right & tranſverſe proceſſes. By the tranſverſe we underſtand the protuberations next the body, which devide the *Vertebra* or Rackbone in a ſtraight line. Theſe proceſſes are perforated that they may give way to the before deſcribed veines & arteries, which entring the Spinall marrow by the holes of the nerves nouriſh the Racke-bones & parts belonging to them. Beſides you muſt note that the perforations of the Rack-bones of the neck by which the nerves proceed from the ſpinall marrow to the outward parts, are under the tranſverſe proceſſe, that is growing or made by the upper & lower *vertebra*, contrary to all the other which are in the reſt of the Rack-bones. For the connexiõ of the Rack-bones, you muſt know that all the *Vertebræ* of the ſpine have ſix connexions, two in their own bodies, and 4 in their oblique proceſſes. By the two firſt connexions they are ſo mutually articulated in their owne bodies that each are joyned with other both above and below. But by the 4 other, by their oblique aſcendent & deſcendent proceſſes, on each ſide 2, they are ſo mutually inarticulate that as the fourth Rack-bone of the neck by its oblique aſcendent proceſſes, is received of the deſcendent proceſſes of the third Racke-bone; ſo it receives the oblique aſcendent proceſſes of the firſt, by its oblique deſcendents, for alwayes the oblique aſcendents are received, and the deſcendents receive. Yet wee muſt except the firſt Rack-bone of the neck which is conteined with 4 connexions by his lower oblique proceſſes, & by its upper by which it receives the oblique proceſſes both of the nowle bone, & of the ſecond Rack-bone. The ſecond *Vertebra* or Rack-bone muſt alſo be excepted which is holden by 5 connexions, that is to ſay, foure by its oblique proceſſes, & the fifth by its own body, by which it is knit to the body of the third *Vertebra*. But we muſt note, that wheras nature hath not given a Spine to the firſt Rack-bone, yet it hath given it a certaine bunch or extuberancy inſtead therof; in like manner, ſeing it makes no common paſſage with the ſecond *Vertebra* for the paſſage forth of the nerve, it is perforated at the ſides of its body, and it is made very thin on the fore ſide, as if it were without body, that it might receive the fore proceſſe raiſed in the upper body of the ſecond

Racke-bone,

What the necke is.

What to be conſidered in the vertebræ of the necke.

Which be the right proceſſes of the *vertebra*.

Which the oblique.

Which the tranſverſe.

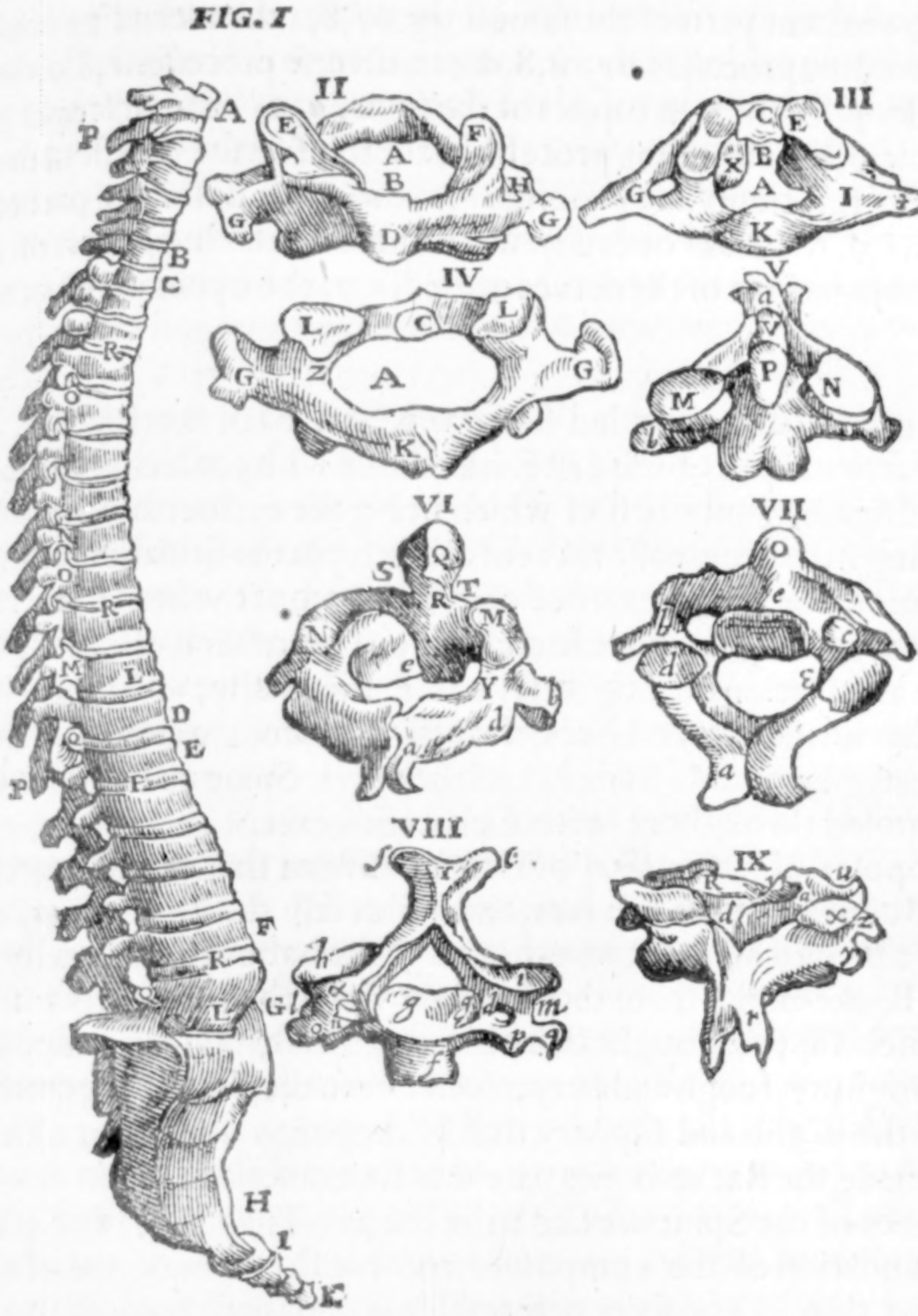
The connexions of the *vertebra of the necke*.

The proceſſe called the tooth.

Racke-bone, which **Hippocrates** calles the tooth, to which the principall Ligament of the head is faſtened, which deſcends within from the hinde part of the head under the *Apophyſes clinoides* or proceſſes of the wedge-bone.

Table 20. Figure 1. *Sheweth all the racke-bone of the backe knit together.*
Figure 2. Sheweth the fore and upper face of the necke, &c. See *D. Crooke*, pag. 398.

FIG. I



From, *A*, to *B*, the ſeven *vertebres* of the necke.

From *C*, to *D*, The twelve *vertebres* of the cheſt.

From *E*, to *F*, The five rack-bones of the Loynes.

From *G*, to *H*, The *Os ſacrum* or Holy-bone conſiſting commonly of 6. *vertebra*.

From *I*, to *K*, The bone *Coccyx* or the rump-bone according to the late writers.

LL, The bodies of the *vertebra*.

M, The tranſverſe proceſſes of the *vertebra*.

N, The deſcendent proceſſes.

OO, The aſcendent proceſſes.

PP, The backward proceſſes.

QQ, The holes that are in the ſides of the *vertebra* through which the nerves are tranſmitted.

RR, A griſtly Ligament betwixt the *vertebræ*.

A, 2, 3, 4, The hole whereout the marrow of the backe iſſueth.

B, 2, 3, The cavity which admitteth the root of the ſecond rack-bone.

C, 3, 4, A cavity or *Sinus* in the ſame place cruſted over with a griſtle.

D, 2, A prominence in the outward region of this *Sinus*.

EF, 2, 3. The *Sinus* or cavity of the firſt racke-bone which admitteth the 2. heads of the nowle-bone.

GG, 2, 3, 4. the tranſverſe proceſſe of the 1. *Vertebra*.

H, 1, The hole of this tranſverſe proceſſe.

I, 3. The *Sinus*, which together with the cavity of the nowle-bone marked with *E*, maketh a common paſſage prepared for the nerves.

K, 3, 4, A rough place where the ſpine of the firſt racke is wanting.

LL, 4, Two cavities of the firſt racke receiving the 2. bunches of the ſecond racke marked with *MN*.

MN, 5, 6, The 2. bunches of the ſecond racke which fall into the cavities of the firſt.

O, 7, The appendix or tooth of the ſecond racke. *P*, 5, A knub of this appendix cruſted over with a griſtle. *Q*, 6, The backſide of the tooth. *R*, 6, the *Sinus* or cavity of the ſame, about which a tranſverſe Ligament is rowled containing the ſaid tooth in the cavity of the firſt racke. *ST* 6. Certaine cavities at the ſides of the tooth whence the roots iſſue of the fore-branch of the ſecond paire of ſinews. *V*, 5, the point of the tooth. *X*, 3, An aſperity or roughneſſe where is a hole but not thrilled through. *Y*, 6, A cavity of the ſecond racke which together with the cavity marked with *Z*, maketh a hole, through which the nerves doe iſſue. *Z*, 4, the **Sinus** of the firſt racke. *a*, 5, 6, 7, the double ſpine of the ſecond racke. *b*, 5, 6, 7, the tranſverſe proceſſe of the ſecond rack. *c*, 7, the hole of the ſaid tranſverſe proceſſe. *d*, 6, 7, the deſcending proceſſe of the ſecond rack whoſe cavity is marked with *d*, in the 6. figure. *e*, 6, 7, the place where the body of the ſecond rack deſcendeth downward. *f. gg*, 8, the lower ſide of the body of the third rack at *f*, the two eminent parts of the ſame at *gg*. *hi*, 8, the aſcending proceſſes. *lm*, 8, the two deſcending proceſſes *nopq*, 8, the tranſverſe proceſſes. *r*, 8, 9, the ſpine or backward proceſſe. *ſt*, 8, the two toppes of the ſpine. *u*, 9, the deſcending proceſſe of the third rack. *x*, 9, the aſcending proceſſe. *y*, the tranſverſe proceſſe of the third rack. α, 8, 9, the hole of this tranſverſe proceſſe. β, 9, the upper hollowed part of the body of the third rack. δ, 9, the *Sinus* or cavity which maketh the lower part of a hole through which the conjugations of the nerves are led. ε, 7, the upper part of the ſame hole.

By what articulation the head is bended backwards and forewards

And by this articulation the head is bended forewards and backewards, as it is moved to the ſides by the articulation of the firſt Racke-bone with the ſecond. That proceſſe is bound by two Ligaments, the firſt of which being the greater and broader is externall, comprehending in the compaſſe thereof all the upper articulation, aſcending from the Racke-bones to the head, or rather deſcending from the head to them, as any other Ligament going from one bone to another; The other is the ſtronger and alſo encompaſſes the articulation mixing its ſelfe with the griſtle, which by its interpoſition binds together all the Racke-bones, the firſt excepted, as you may ſee in pulling aſunder the Racke-bones of a Swine; and the whole Spine or Backe-bone is tyed together and compoſed throughout with ſuch Ligaments.

The *Vertebra* of the Holy bone.

The Holy bone is compoſed of 4. *Vertebræ* [or rather of five, or ſixe, as in the figure following] Beſides the Rumpe-bone, it receives, and holds faſt the *Oſſa Ilium*, or Hanch-bones, and is as a *Baſis* to all the Racke-bones placed above it, whereby it comes to paſſe that the Racke-bones from the head to the Holy-bone grow ſtill thicker, becauſe that which ſupports ought to be bigger than that which is ſupported. There is a certaine moyſture, tough and fatty, put between the Rack-bones, as alſo in other joints, to make them glib and ſlippery that ſo they may the better move: Whileſt this motion is made, the Racke-bones part one from another.

The manifold uſes of the backebone.

The commodities or uſes of the Spine are ſaid to be foure. The firſt is, that it is, as it were the ſeat and foundation of the compoſure and conſtruction of the whole body, as the Carkaſſe is in a ſhip. The ſecond, that it is a way or paſſage for the marrow. The third is, becauſe it containes and preſerves the ſame. The fourth is, that it ſerves for a wall or bulwarke to the entrailes which lye and reſt upon it on the inſide. And becauſe we have fallen into mention of Ligaments, it will not be amiſſe to inſert in this place, that which ought to be knowne of them. Firſt therefore we will declare what a Ligament is, then explaine the divers acceptions thereof, and laſtly proſecute their differences.

What a Ligament is.

Therefore a Ligament is nothing elſe than a ſimple part of mans body, next to a bone and Griſtle the moſt terreſtriall, and which moſt uſually ariſes from the one or other of them either mediatly or immediatly, and in the like manner ends in the one of them, or in a Muſcle, or in ſome other part; whereby it comes to paſſe that a Ligament is without blood, dry, hard, and cold and without ſenſe, like the parts from whence it ariſes, although it reſemble a Nerve in whiteneſſe and conſiſtence, but that it is ſomewhat harder.

Why it is without ſenſe.

What parts may be called Ligaments in a generall ſignification.

A Ligament is taken either generally, or more particularly; in generall, for every part of the body, which tyes one part to another, in which ſenſe the skin may be called a Ligament, becauſe in containes all the inner parts in one union. So the *Peritonæum* comprehending all the naturall parts, and binding them to the backe-bone: ſo the membrane inveſting the Ribbs, (that is the *Pleura*) containing all the vitall parts; thus the membranes of the braine, the nerves, veines, arteryes, muſcles, membranes, and laſtly all ſuch parts of the body, which bind together and conteine other, may be called Ligaments, becauſe they binde one part to another; as the nerves annexe the whole body to the braine, the Arteries faſten it to the heart: and the veines to the liver. But to conclude, the name of a Ligament more particularly taken, ſignifies that part of the body, which we have deſcribed a little before.

The differences of Ligaments are many, for ſome are membranous and thin; others broad, otherſome thicke and round, ſome hard, ſome ſoft, ſome great, ſome little; ſome wholy griſtlely, others of a middle conſiſtence betweene a bone and a griſtle, according to the nature of the motion of the parts, which they binde together in quickneſſe, vehemency and ſlowneſſe. We will ſhew the other differences of Ligaments, as they ſhall preſent themſelves in diſſection.

The differences of Ligaments properly ſo called.

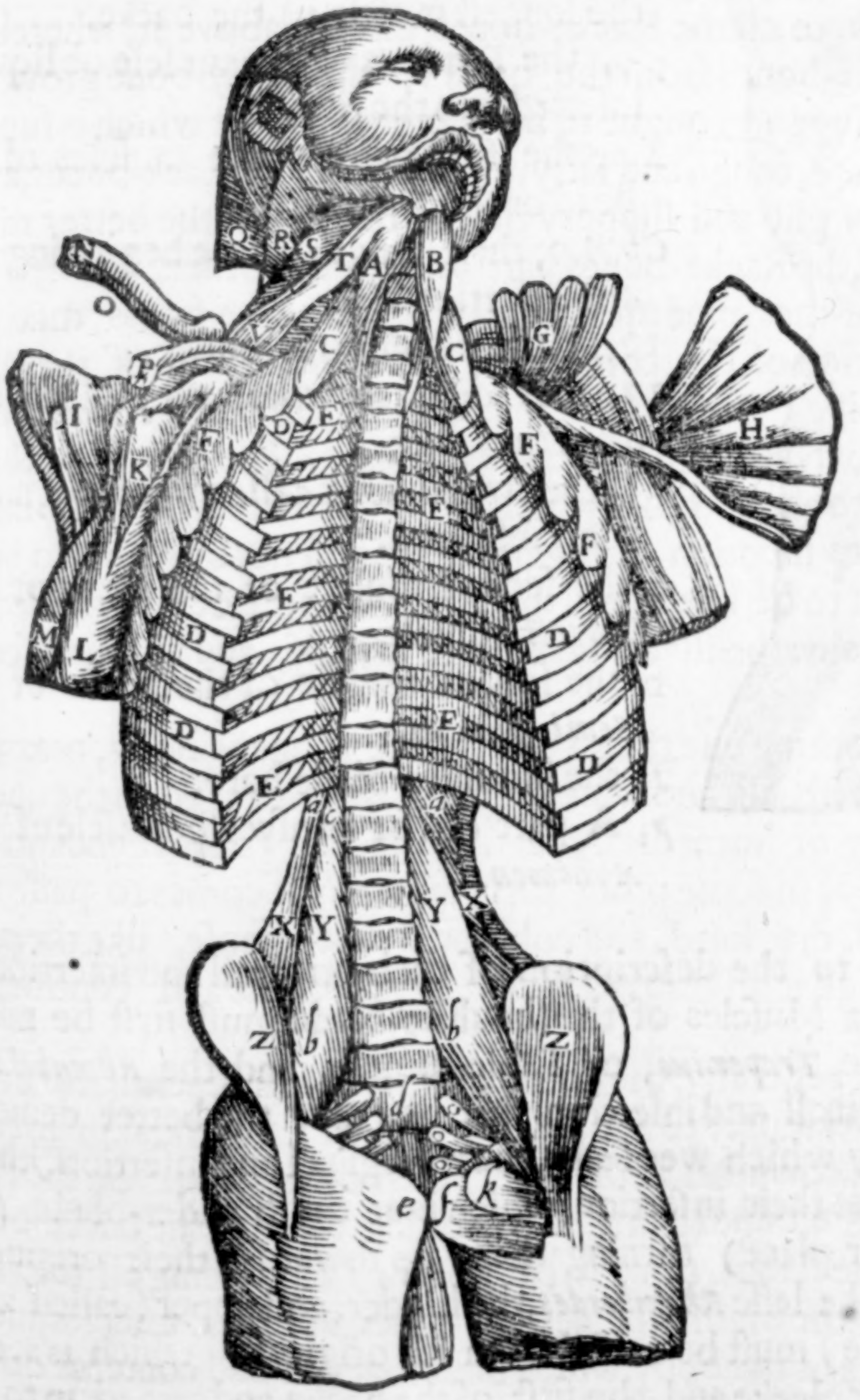
Chap. XVII.

Of the Muſcles of the Necke.

The Muſcles of the necke as well proper as common, are in number twenty, or elſe twenty two, that is, ten, or eleven on each ſide; of which ſeven only move the head, or the firſt *vertebra* with the head; the other 3 or 4, the necke it ſelf. Of the 7 which move the head, & with the head the firſt *Vertebra*, ſome extend & erect it, others bend and decline it, others move it obliquely, but all of them together in a ſucceſſive motion move it circularly; and the like judgement may be of the Muſcles of the Necke.

Their number

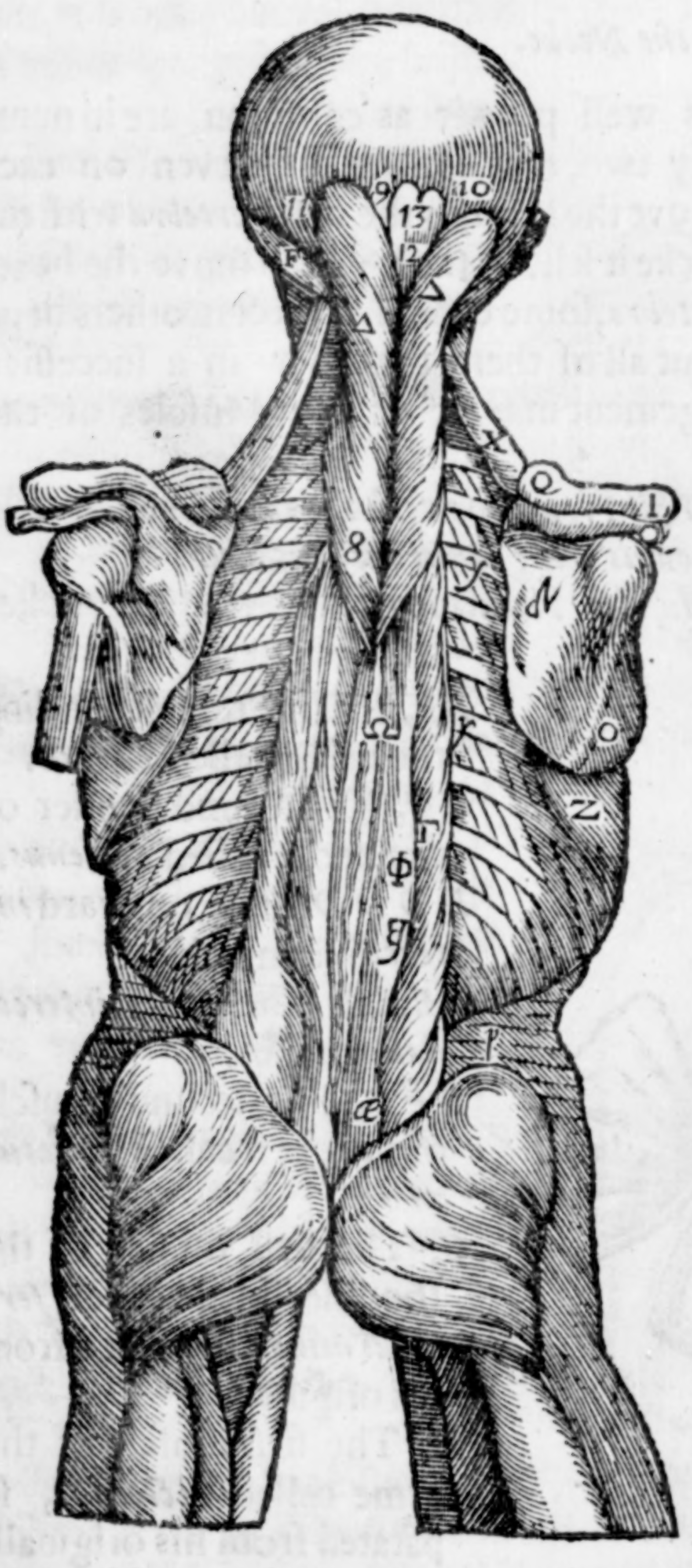
The fourth Figure of the Muſcles. This Figure ſheweth the cavities of the middle and lower bellies, the bowels being taken out, but moſt part of the bones and muſcles remaining.



AB, The firſt muſcle bending the necke called *Longus*.
C C, The ſecond bender of the necke called *Scalenus*.
D D D D, The outward *intercoſtall* muſcles.
E E E E, The inner *intercoſtall* muſcles.
F F F, The ſecond muſcle of the cheſt called *ſerratus maior*.
G, The firſt muſcle of the ſhoulder-blade called *ſerratus minor*, ſeparated from his originall.
H, The firſt muſcle of the arme called *Pectoralis*, ſeparated from his originall.
I, The ſecond muſcle of the arme called *Deltoides*.
K, The bone of the arme without fleſh.
L, The firſt muſcle of the cubite called *Biceps*.
M, The ſecond muſcle of the cubit called *Brachiæus*.
N, The clavicle or coller-bone bent backward.
O, The firſt muſcle of the cheſt called *ſubclavius*.
P, The upper proceſſe of the ſhoulder-blade. *Q*, The firſt muſcle of the head called *obliquus*

obliquus inferior. R, The ſecond muſcle of the head called *Complexus.* S, The fourth muſcle of the ſhoulder blade called *Levator.* T V, The two bellies of the fourth muſcle of the bone *Hyois.* X X, *a a*, The fiſt muſcle of the backe whoſe originall is at *a a.* Y Y, *b b*, *c c*, The ſixt muſcle of the thigh called *Psoa*, whoſe originall is at *c c*, and tendon at *b b.* Z Z, The ſeaventh muſcle of the thigh. *d*, the holy bone. *o o o*, the holes of the holy bone out of which the nerves doe iſſue. *e*, A portion of the fiſt muſcle of the thigh ariſing from the ſhare-bone. *f*, the ſhare-bone bared. *k*, the ninth muſcle of the thigh or the firſt *circumactor.*

The fifth Figure of the muſcles in which ſome muſcles of the head, Cheſt, arme, and ſhoulder-blade are deſcribed.



I, The proceſſe of the ſhoulder-blade, called the top of the ſhoulder.

O, The fourth muſcle of the arme or *the greater round muſcle*, to which *Fallopius* his right muſcle is adjoyned, which ſome call the *leſſer round muſcle.*

Q Q. The ſixt muſcle of the arme or the upper *blade rider.*

X, The ſecond muſcle of the ſhoulder-blade or the *Levator* or heaver.

Z· the ſecond muſcle of the cheſt or the *greater Saw* muſcle.

Υ, the fifth muſcle of the cheſt or muſcle called *Sacrolumbus.*

αβ, His place wherein he cleaveth faſt to the longeſt muſcle of the backe.

γγ, the Tendons of the muſcle obliquely inſerted into the ribs.

Δ Δ, the firſt paire of the muſcles of the head or the Splinters.

Ch. 8. 9, their length whoſe beginning at 8 and inſertion at 9.

10, 11. the ſides of this muſcle.

12, that diſtance where they depart one from the other.

13, the two muſcles called *Complexi*, neare their inſertion.

Φ, the ſecond muſcle of the backe or the *Longeſt* muſcle.

Ω, the fourth muſcle of the backe or the *Semi-ſpinatus.*

ſ, the ſhoulder-blade bare.

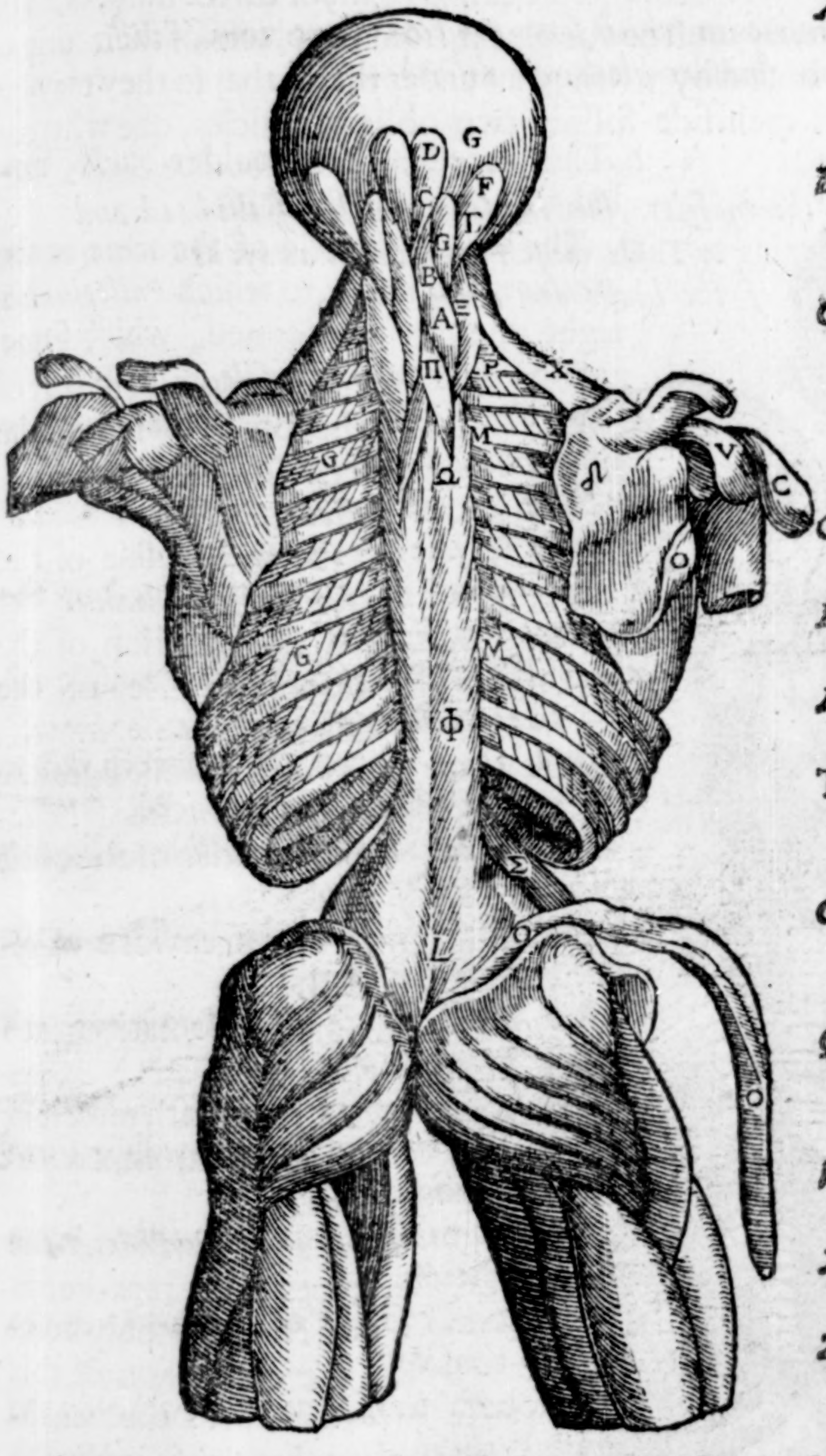
p, A part of the tranſverſe muſcle of the *Abdomen.*

But before I can come to the deſcription of their originall and inſertion, I muſt admoniſh thee, that the 2 Muſcles of the ſhoulder-blade muſt firſt be taken away by diſſection; that is, the *Trapezius*, or Table-muſcle, and the *Rhomboides*, or ſquare-muſcle; whoſe originall and inſertion that we may the better demonſtrate, (or rather the action by which wee ſeeke that originall and inſertion,) they muſt be pulled up, beginning at their inſertion, which is at the ſhoulder-blade (as ſhall be ſhewed in the proper place) turning them up towards their originall, that is, to the Spine. Beſides the leſſe *Rhomboides*, the hinder, and upper (called alſo the *Dentatus* or toothed-muſcle) muſt be raiſed from its originall, which is at the three lower Rack-bones of the Necke and the firſt of the backe, and turned up to its inſertion, which is at three ſpaces of the lower ribbs nigh to the hinde, and upper angle of the ſhoulder-blade, as ſhall be ſhewed in fit place hereafter. Theſe muſcles thus raiſed up, the 4 muſcles which erect and extend the head muſt be taken away, and then thoſe two which move it obliquely, and laſtly one which bends, or declines, for thus anatomicall order requires. Yet if you thinke good, you may, not hurting the other, firſt of all cut away that which is called the *Maſtoides*, which declines or bends the head. For theſe 4, which lift up and extend the head, the firſt from the figure of the Spleene is called the *Splenius*, it aſcends from the 5. upper ſpines of the backe and the 4 lower of the necke, and is obliquely inſerted at the backe part of the head and the mammillary proceſſe, whence you may raiſe it towards its originall. The ſecond by reaſon of its compoſure is called *Complexus*; this paſſing from the third, fourth and fift tranſverſe proceſſe of the Backe and often from the firſt of the Necke, aſcends directly to the backe part of the head

The Splenius.

The Complexus.

The ſixth Figure of the muſcles, ſhewing ſome of the muſcles of the Head, Backe, Cheſt, Shoulder-blade and Arme.



A D, the ſecond paire of the muſcles of the head, or the two *Complexi*, the firſt part is at *A D*.

B C. the ſecond part. *E F*, the third part riſing up under *G* and inſerted at *F*.

G, the fourth part of this muſcle or the right muſcle of the head according to *Fallopius*, which *Veſalius* made the 4. part of the 2.

G G, (Betwixt the ribs) the externall *Intercoſtall* muſcles.

L, the originall of the 2. muſcle of the backe.

M, His tendons at the racke-bone of the necke.

The upper *O* the fourth muſcle of the arme or the *greater round* muſcle.

O O, the lower, the 8 muſcle of the cheſt, or the *Sacrolumbus* hanging from his originall.

Q, the ſixt muſcle of the arme or the upper *Bladerider* inverted.

V, the third ligament of the joynt of the arme:

X, the fourth muſcle of the ſhoulder-blade or the *beaver*.

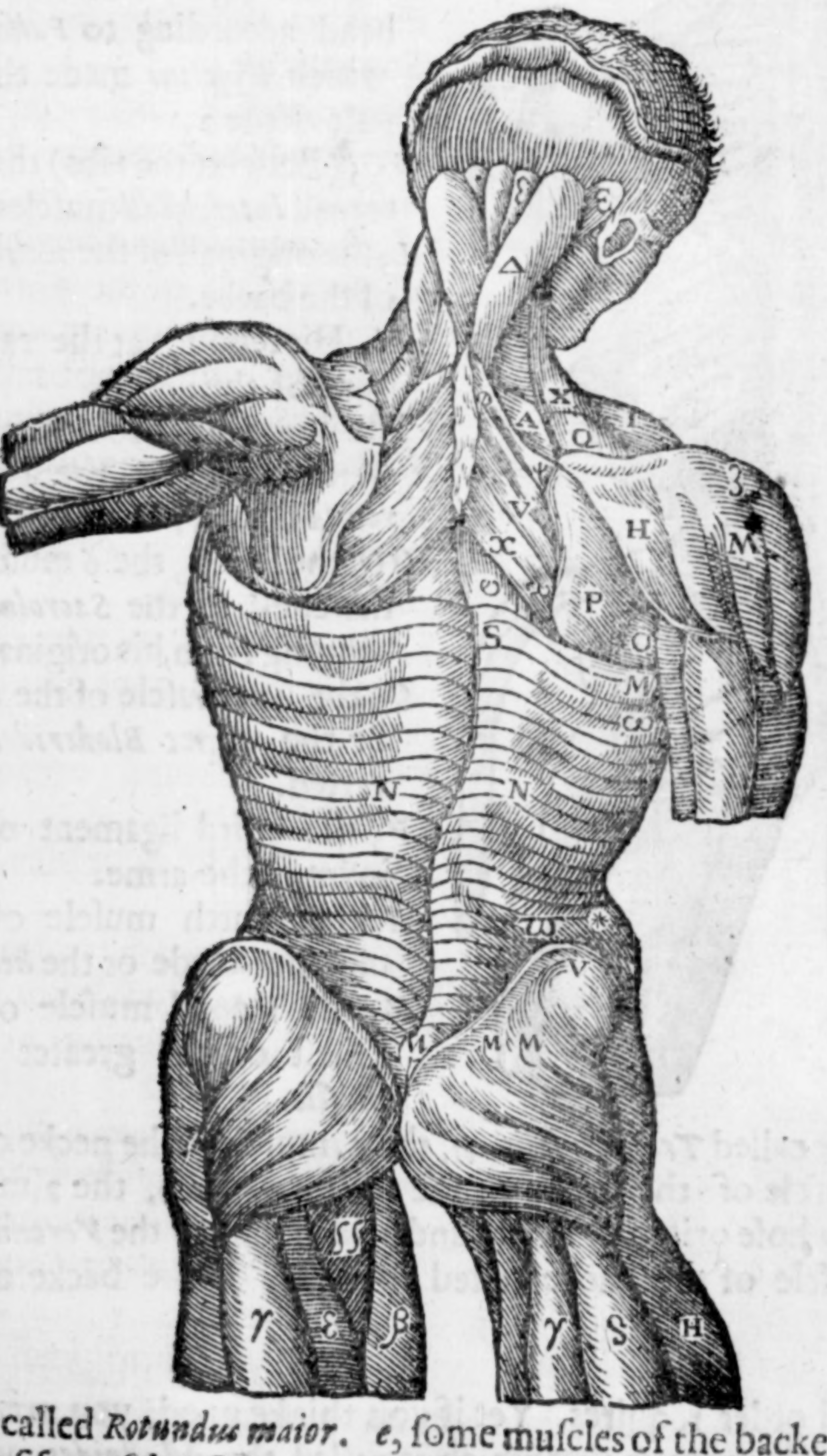
Z, the ſecond muſcle of the Cheſt or the greater *Saw-muſcle*.

Ξ, the 3. muſcle of the necke called *Tranſuerſalis*. Π, the 4. muſcle of the necke called *Spinatus*. Σ, the firſt muſcle of the backe or the *Square muſcle*. Φ, the 2. muſcle of the backe or the *Longeſt*, whoſe originall is at *L* and his tendons at the *Vertebræ* at *M M*. Ω, the fourth muſcle of the backe called *Spinatus*. ẟ, the backe of the ſhoulder-blade flaied.

head, incompaſſing the lower and ſide part of the necke, you may eaſily take it up; if you begin at the ſpine, and ſo goe forwards to the tranſverſe proceſſes and mammillary proceſſes of the nowle bone. This *Complexus* may be divided into two or three muſcles, but that with ſome difficulty, by reaſon of its folded texture. The third and fourth, which be two of the eight little muſcles, being foure on each ſide, doe aſcend ſomewhat obliquely, the firſt truely from the whole ſide of the ſecond *Vertebra.* The ſecond from the whole ſide of the proceſſe of the firſt *Vertebra,* which it hath in ſtead of a ſpine; they aſcend to the backe part of the head juſt againſt the ſpine; theſe two muſcles by the conſent of all Anatomiſts are called right, or direct muſcles, onely moveing the head: theſe truely muſt not be pluckt from the places of their originall, nor inſertion, but onely bound by a ſtring put under them, that ſo they may be the more eaſily ſhewed. On each ſide follow two oblique muſcles, one whereof

The Recti, or right muſcles.

The ſeventh Figure of the muſcles; ſhewing ſome muſcles of the head and Cheſt, the Trapezius *or Table-muſcle being taken away: as alſo of the blade and arme.*



A, The prominent part of the fourth muſcle of the cheſt called *Serratus poſticus ſuperior.*

Δ, the firſt muſcle of the head called *ſplenius.*

E E, the inſertion of the ſecond muſcle of the head called *Complexus.*

I, the coller bone bared.

M, the backpart of the ſecond muſcle of the arme called *Deltois.*

ζH, His backward originall.

θ, His implantation into the arme.

N N, the fourth muſcle of the arme called *Latiſſimus.*

ς μ, His originall from the ſpines of the rack-bones and from the holy bone

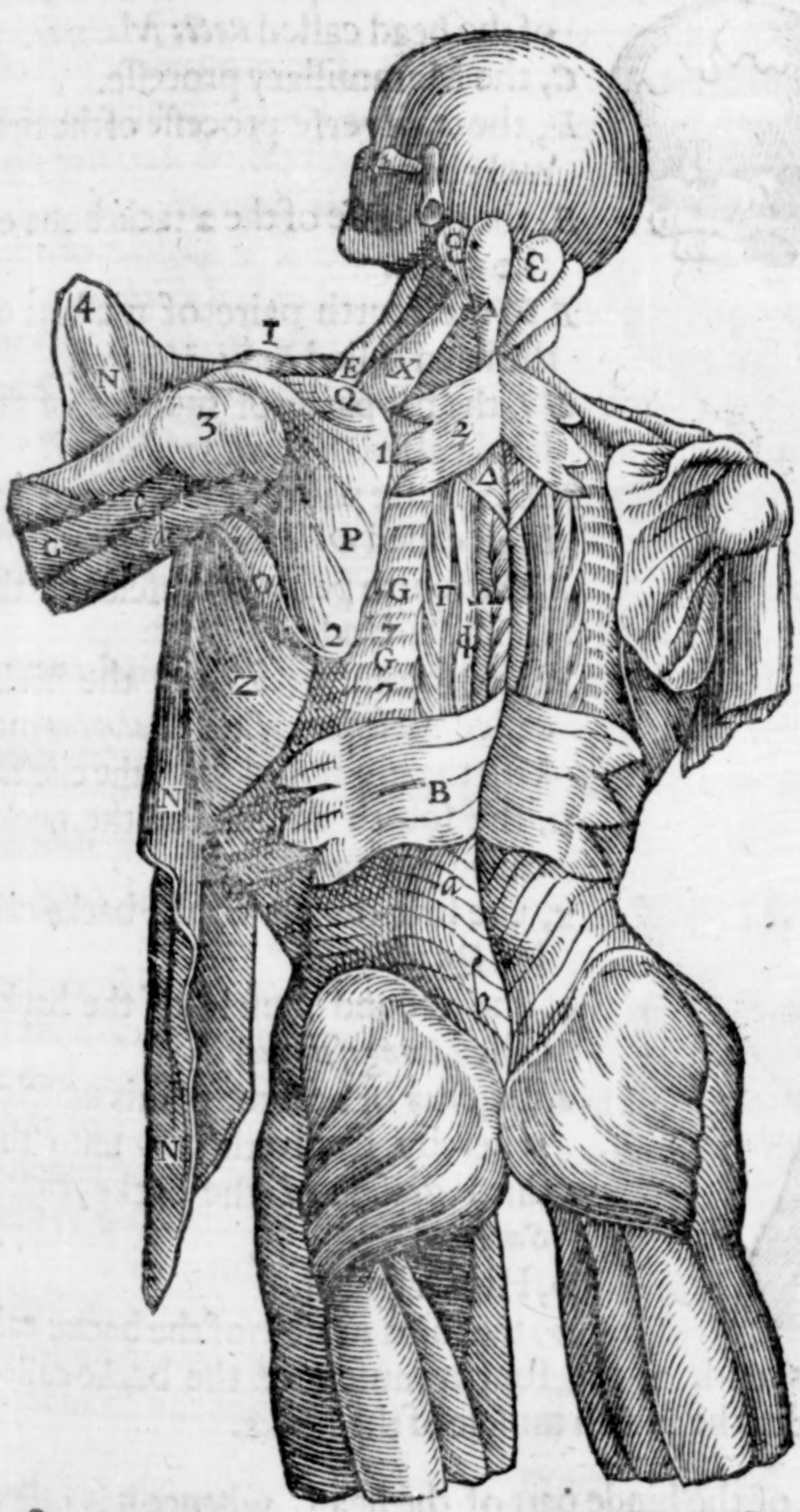
ϖ, the connexion of this muſcle with the hanch-bone, which is led in the inſide from μ to ϖ.

ω, the place where it lieth upon the lower angle of the Baſis of the ſhoulder-blade.

O, the 4. muſcle of the arme called *Rotundus maior.* *e*, ſome muſcles of the backe doe here offer themſelves. *P*, the fift muſcle of the arme called *ſuperſcapularis Inferior.* *Q*, the ſixt muſcle of the arme called *Superſcapularis Superior.* *S*, the beginning of the third muſcle of the arme called *Latisſimus.* *V*, the third muſcle of the blade called *Rhomboides.* φ *X*, His originall from the ſpines of the rackebones. ψ ω, His inſertion into the baſis of the ſhoulder-blade. χ, the fourth muſcle of the blade called *Levator.* * A part of the oblique deſcendent muſcle of the *Abdomen.*

onely moves the head; the other primarily the firſt *Vertebra*, but ſecondarily, and by accident the head it ſelfe. For the firſt, contrary to the opinion of ſome, it ariſes from the tranſverſe proceſſe of the firſt rack-bone, and then is inſerted, above the inſertion of the firſt right muſcle, the which in like manner you muſt lift up, by ſome thing put underneath it, but not ſeparate it. The other entring forth of the ſpine of the ſecond *Vertebra*, is inſerted at the proceſſe of the firſt, contrary to the originall of the precedent, although ſome thinke otherwiſe. It will be convenient in like manner onely, to lift up this with a ſtring, and not plucke him from his place, that ſo you may ſee how all theſe make a perfect triangle. The action of this muſcle is contrary to the action of the precedent, as the contrariety of its originall and inſertion ſhew.

The eight Figure of the muſcles; eſpecially of thoſe of the Cheſt, Head, and Shoulder-blade, the Trapezius, Latiſſimus, and Rhomboides, *being taken away.*



A, The fourth muſcle of the cheſt, or the upper and hinder Saw-muſcle.

B, the 5 muſcle of the cheſt, or the lower and hinder Saw-muſcle.

a, *b*, A membranous beginning of the muſcle of the *Abdomen*, deſcending obliquely downe from the ſpine of the backe.

C, the firſt muſcle extending the Cubit at *c*, his originall is from the necke of the arme, and from the lower baſis of the blade at *d*.

E, the originall of the fourth muſcle of the bone *hyois* from the blade.

GG, the outward intercoſtall muſcles.

I, the Clavicle or coller-bone bared.

N, the upper, the ſecond muſcle of the arme called *Deltois*, char. 4, 5, the beginning of this muſcle.

N, the third muſcle of the arme or the broad muſcle ſeparated.

O, the fourth muſcle of the arme or the lower *Super-Scapularis* or bladerider.

1, 2, 3. Char. His originall at the baſis of the ſhoulder-blade at 1 2, and his inſertion into the joynt of the arme at 3. *Q*, the ſixt muſcle of the arme or the upper *Super-Scapularis*. *X*, the fourth muſcle of the blade called *Levator* or the heaver. *Z*, the ſecond muſcle of the Cheſt or the greater Saw-muſcle. 7, 7, Char. the ribs. Γ, the ſixt muſcle of the cheſt, or the muſcle called *Sacrolumbus*. Λ, the firſt muſcle of the head or the ſplinter. E E, the ſecond muſcle of the head or the inſertion of the muſcles called *complexei*. Φ, the ſecond muſcle of the backe or the longeſt muſcle. Ω, the fourth muſcle of the backe called *Semiſpinatus*.

Wherefore

Which may be truly called the proper muſcle of the necke.

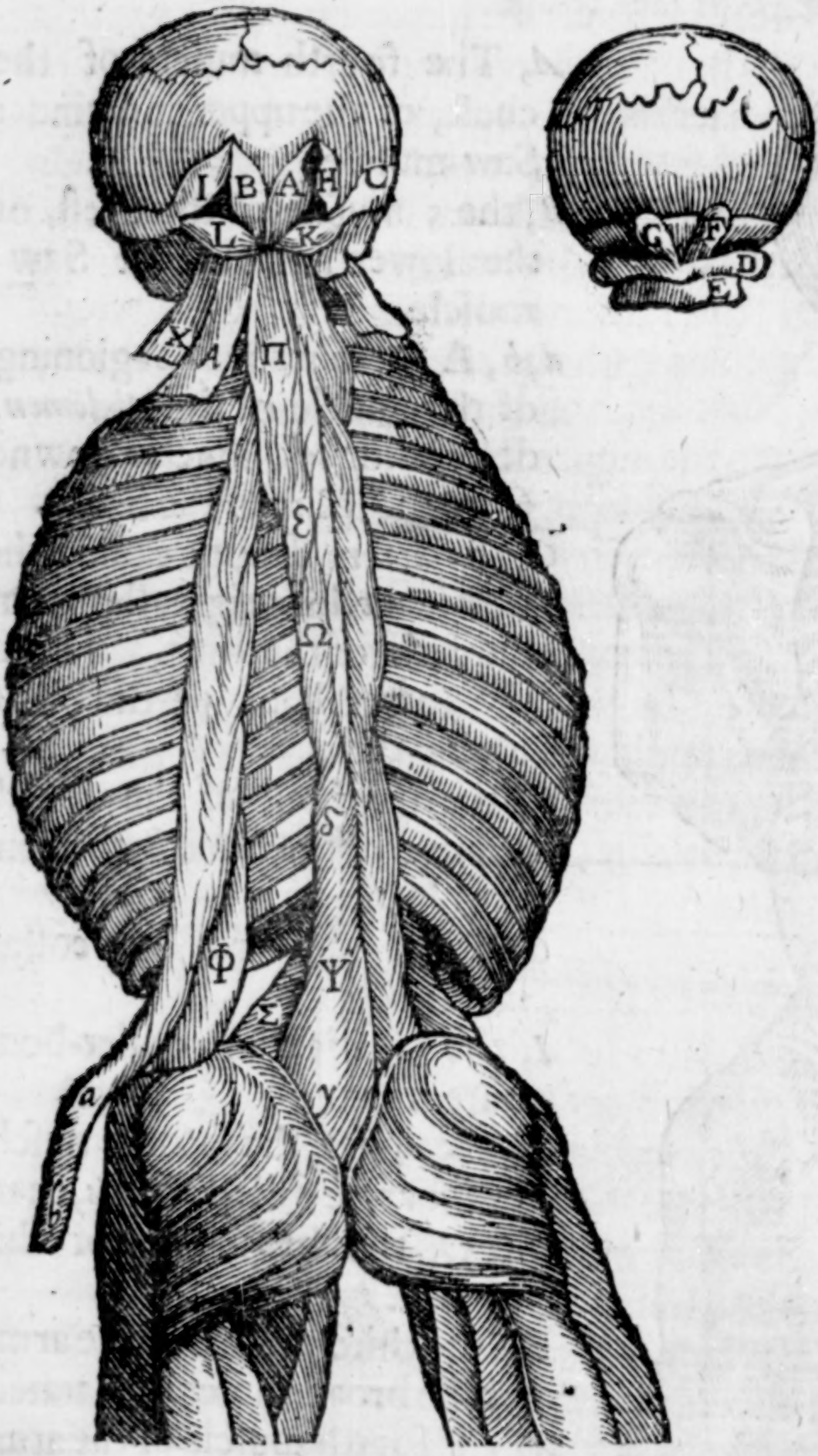
Wherefore when the firſt oblique moves the head obliquely forwards, the ſecond puls it packe by the firſt *Vertebra*, this with his aſſociate of the other ſide, may be truly termed the proper muſcles of the neck, becauſe they belong to no other part; whereas it is contrary in other muſcles. But we muſt note, that the head (according to *Galens* opinion) hath two motions, one directly forwards and backwards, as appeares in beckning it forwards, and caſting it backwards; the other circular.

The two motions of the head.

The firſt in *Galens* opinion is performed by the firſt *Vertebra* moved upon the ſecond; the ſecond by the head moved upon the firſt *Vertebra*; for which he is reproved by the latter Anatomiſts, who teach that the head cannot be turned round or circularly upon the firſt *Vertebra* without putting it out of joynt.

For the laſt, which bends the head, it aſcends from the upper and ſide part of the *Sternon*, and the next part of the clavicle, obliquely to the *Apophyſis*

The ninth Figure of the muſcles, ſhewing the muſcles of the Head and Necke.



A B, the third paire of the Muſcles of the head called *Recti Maiores*.

C, the Mammillary proceſſe.

D, the tranſverſe proceſſe of the firſt rackebone.

E, the proceſſe of the 2 rackebone of the necke.

F G, the fourth paire of muſcles of the head called *Recti Minores*.

H I, the fiſt paire of muſcles of the head called *Obliqui Superiores*.

K L, the ſixt paire of muſcles of the head called *Obliqui Inferiores*.

X, the fourth paire of muſcles of the ſhoulder-blade.

Λ, the ſecond muſcle of the necke called *Scalenus*, which *Falopius* maketh the eight muſcle of the cheſt.

Π, the fourth muſcle of the necke called *ſpinatus*.

Σ, the firſt muſcle of the backe called *Quadratus*.

Φ, the ſecond muſcle of the backe called *Longiſsimus*.

a, the *ſinus* or boſome of this muſcle, whereby it giveth way unto the third muſcle of the backe, called *Sacer*.

b, His Originall.

Ψ, the third muſcle of the backe called *Sacer*. γ, His Originall. δ, His end. Ω, the fourth muſcle of the backe called *Semiſpinatus*. ε, His upper end under the fourth muſcle of the necke.

The Maſtoideus.

Maſtoides or mammillary proceſſe of the hinde part of the head, whence it is called the *Maſtoideus*. You may divide this by reaſon of its manifold originall rather into two, than into three muſcles. But it had beene better that the head might have beene moved every way, equally backwards and to the right and left ſides; but thus it would often have beene ſtrained to our great dammage and danger of life; neither could there have beene ſuch facility of motion without a looſeneſſe of the joynt. Therefore nature had rather beſtow upon the head an harmeleſſe facultie of fewer motions, than one furniſhed with more variety, but with a great deale more uncertainty and danger, Wherefore it hath made this juncture not laxe or looſe, but ſtiffe and ſtrong.

After the ſhewing of theſe muſcles, we muſt come to three or foure of the necke, of which number two (which ſome reduce to one) extends, another bends, and the laſt moves ſide wayes, and all of them with a motion ſucceeding each other turne it about, as we ſaid of the muſcles of the head. The firſt of theſe which extend, taking its originall from the ſixe tranſverſe proceſſes of the ſixe upper racke-bones of the backe, or rather from the root of the oblique, aſcends directly to the ſpine of the ſecond *Vertebra* of the necke, and the oblique proceſſe thereof; ſome call it the *Tranſverſarius*; that is, the tranſverſe-muſcle. This, if you deſire to take it away, it is beſt firſt to ſeparate it from the ſpine, then to turne it upwards to the tranſverſe proceſſes; unleſſe you had rather draw it a little from its partner and companion in that place where their originals are diſtinct, ſeeing it is the laſt and next to the bones.

The *Tranſverſarius*.

Marvell not, if you finde not this diſtinction of their originall, ſo plaine and maniſeſt, for it is commonly obſcure. For the muſcle *Spinatus*, as it moſt commonly comes to paſſe, ariſing from the roots of the ſeven upper ſpines of the backe, and the laſt of the necke, is inſerted into other ſpines of the necke, ſo that it might eaſily be confounded with the former by *Galen*. The third bends the necke, and ariſing within from the body of the five upper *Vertebræ* of the back (though with a very obſcure originall, ſpecially in leane bodies) it aſcends under the gullet alongſt the necke, even to the nowle-bone, into whoſe inner part it is obſcurely inſerted. Wherefore it is likely that it helpes not onely to bend the necke, but alſo the head. This muſcle is made of oblique fibers proceeding from the body of the *vertebra*, all the way it paſſes to the tranſverſe proceſſes of the other *Vertebra*. But it ſeemes with its copartner which is oppoſite to it, to make a certaine hollow path upon the bodies of the *Vertebræ*, to the gullet, and it is called the long muſcle. The fourth and laſt, which we ſaid moves the necke to one ſide, is called *Scalenus* from the figure thereof; it aſcends from the hinder and upper part of the firſt rib of the Cheſt, inſerting its ſelfe into all the tranſverſe proceſſes of the necke by its fibers, which as it were for the ſame purpoſe, it hath ſufficiently long, that it may faſten it ſelfe from the furtheſt or loweſt proceſſe of the necke into the firſt or higheſt thereof. The paſſage of the nerves through this to the arme makes this muſcle ſeeme double or divided into two. For the veines and arteries pertaining to the necke, they have beene declared in the proper Chapters of the diſtributions of the veſſels; it remaines that you note, all theſe muſcles receive nerves from the *Vertebræ* whence they ariſe.

The *Spinatus*.

The *Longus*.

The *Scalenus*.

CHAP. XVIII.

Of the Muſcles of the Cheſt and Loynes.

WE muſt now ſpeake of the Muſcles both of the Cheſt which ſerve for reſpiration, as alſo of the Loines. But firſt we muſt know that the hinde part of the Cheſt called the *Metaphrenum*, or backe, conſiſts of twelve *Vertebræ*, the loines of five, all which differ not from the *Vertebræ* of the necke, but that they are thicker in their bodies than theſe of the necke; neither are they leſſer in holes, neither they have their tranſverſe proceſſes perforated, or parted in two, as the racke-bones of the necke have. Beſides each of theſe racke bones alone by it ſelf, on each ſide in the lower part thereof makes a hole, through which a nerve hath paſſage from the ſpinall marrow to the adjacent parts, when on the contrary in the *Vertrebræ* of the necke, ſuch holes or paſſages are not made, but by meeting together of two of them.

In what the *Vertebræ* of the necke and loines agree and diſagree.

Concerning the proceſſes of the Rackbones of the Cheſt, whether tranſverſe, right or oblique, they differ nothing from theſe of the necke (I meane even to the tenth) but that the tranſverſe ſeeing they are not perforated, as we ſaid before, do as it were ſuſtaine the ribbes, being ſtraitly bound to them with ſtrong ligaments both proper and common; but after the tenth *Vertebra* of the backe, the two other of the backe, and all thoſe of the loines are different, not onely from thoſe of the necke, but alſo from the tenne firſt of the backe, by reaſon of their oblique proceſſes, becauſe from the eleaventh (which is received, as well by that which is above it, as by that under it, for the ſtrength of the whole backe, and the eaſier bending thereof without feare of fracture or diſlocation) the above mentioned proceſſes of the lower rack-bones which were wont to receive, are received; as on the contrary they receive which were wont to be received. They differ beſides from all the forementioned, by reaſon of their ſpines, becauſe from the eleaventh they beginne by little and little to looke upwards, contrary to the former.

How the tenth *Vertebra* of the backe, may be ſaid to be the middle of the ſpine.

But if any aſke, how the tenth *Vertebra* of the backe may be termed the midſt of the ſpine, being the whole ſpine conſiſts of twentie foure *Vertebræ*? He may know that this may be true, as thus; if the ſixe bones of the holy-bone, and the fourth of the Rumpe (being more griſtlely than bony) be numbred amongſt the bones of the Spine; for then from the ſetting on of the head to the eleaventh racke bone of the backe, are ſeaventeene in number, and ſo many from thence downewards.

The number of the muſcles of the Cheſt.

The muſcles dilating the Cheſt.

The muſcles contracting the Cheſt.

The *Subclavius* is the firſt of the muſcles dilating the cheſt.

Serratus major.

Serratus poſterior and ſuperior.

The oblique aſcendent of the lower belly.

The eleaven *Intercoſtales externi.*

6. *Intercartilaginei.*

But let us returne to the muſcles of the Cheſt ſerving for reſpiration. Firſt, you muſt know that theſe Muſcles are fourescore and nine, that is, on each ſide fortie foure, alike in ſtrength, thickneſſe, ſite, and action; and one beſides in the midſt which they call the *Diaphragma* or Midriffe. Of theſe fortie foure, there are 22, which dilate the cheſt in drawing in the breath; that is, the *Subclavius*, the *Dentatus*, or *Serratus major* in the opinion of ſome, both the *Rhomboides*, or *Serrati poſtici*; the oblique aſcendent of the lower belly, the eleaven *Intercoſtales*, and the ſixe *Intercartilaginei externi*. On the contrary, as many contract the breaſt in expiration; to wit, the *Sacrolumbus*, the oblique deſcendent, the Right and tranſverſe of the lower belly, the inner Trangular, the ſixe *Intercartilaginei*, and the eleaven inner *Intercoſtales*. Of theſe twentie two dilating the Cheſt, the firſt, from the ſite is called the *Subclavius*, for it deſcends obliquely from the inner and forepart of the *Clavicula* or Coller-bone, into the griſtle of the firſt ribbe, even to the *Sternon*, and dilates it. The ſecond is the *Serratus major*, the greater Saw-muſcle ariſing according to the opinion of ſome from the whole *baſis* of the ſhoulder-blade on the inſide, and it is tranſverſely inſerted into the nine upper ribbes, producing certaine toothed or ſaw-like proceſſes running further to the bones of the rib, than to the ſpaces betweene them, or Intercoſtall muſcles, whereupon it hath the name of the ſaw-muſcle; yet ſome have referred this muſcle to them of the ſhoulder-blade. The third deſcends from the three lower ſpines of the neck, and the firſt of the backe, by means of a membranous and moſt thinne ligament, into the three or foure upper ribbs, running further into their ſpaces or Intercoſtall muſcles, than into the ribbs themſelves, wherupon it is called *Serratus poſterior, & ſuperior*, that is, the hinder and upper ſaw-muſcle. The fourth in like manner aſcends by means of a membranous and thin ligament from the three upper ſpines of the loines, and the two laſt of the cheſt, or backe, into three or foure of the lower, or laſt of the baſtard ribbs, ſent forth further into them or their bones, than into the Intercoſtall muſcles poſſeſſing the ſpaces betweene them, wherefore it is called *Serratus poſterior & inferior*, the hinder and lower ſaw-muſcle. Moreover theſe two laſt muſcles have beene called by a common name from their figure the *Rhomboides*, that is, the ſquare muſcles. The fiſt which we ſaid was the aſcendent of the *Epigaſtrium*, hath already beene ſufficiently deſcribed in his place. The eleaven *Intercoſtales externi*, or externall Intercoſtall muſcles deſcend obliquely from the backe part of the lower ſide of the upper ribbe, into the forepart of the upper ſide of the ribbe lying next under it, after a quite contrary manner to the ſixe *Intercartilaginei*, who having like originall and inſertion amongſt the griſtles, as the Intercoſtall amongſt the ribbes, deſcend obliquely from the forepart backwads. And thus much of the muſcles dilating the Cheſt in inſpiration.

The *Sacrolumbus*, the firſt of thoſe which contract the cheſt.

But the firſt, of the other muſcles, being as many in number, which contract the Cheſt in expiration, ariſing from the holy-bone, and the oblique proceſſes of the loines, aſcends (firmely and confuſedly adhering with the *Muſculus ſacer*, or holy-muſcle, which we ſhall deſcribe hereafter) to the roots of the twelve ribbes, imparting in the aſcent a ſmall tendon to each of them, by which it drawes theſe ribbs towards the tranſverſe proceſſes; and by reaſon of its Originall it is called *Sacrolumbus*, that is, the Holy-loine-muſcle.

The oblique deſcendent, the right and tranſverſe of the *Epigaſtrium*.

The ſecond, third, and fourth, which we ſaid were the oblique deſcendent, right, and tranſverſe of the *Epigaſtium*, have beene formerly deſcribed in their place.

But by the way you muſt note that theſe three muſcles of the *Epigaſtrium* helpe expiration rather by accident, than of themſelves, to wit, by driving backe the midriffe towards the lungs by the entrailes, which alſo they force upwards, by drawing the parts into which they are inſerted towards their Originall. The fifth which we called the *Triangulus*, or Triangular, may be called the *Compreſſor* of the griſtles, which proceeding from the inner ſides of the *Sternon*, goes to all the griſtles of the true ribbes; this is more apparent under the *Sternon* in beaſts, than in men, though it be not very obſcure in them neither. For the internall Intercoſtall muſcles, in my judgement, they ariſe from the lower ſides of the upper ribbe, and deſcending obliquely from the fore part backwards, are inſerted into the upper ſide of the ribbe next under it; ſo that they may follow the production of the fibers of the externall *Intercartilaginei*; as the ſixe internall *Intercartilaginei* follow the ſite of the externall Intercoſtall proceeding from behinde forwards; wherefore as well the Intercoſtall, as the *Intercartilaginei*, every where interſect each other, after the ſimilitude of the letter X. I know ſome have written that the internall muſcles (whether intercoſtall or *Intercartalaginei*) aſcend from the upper ſides of the lower ribbe forwards, or backwards.

Triangulus muſculus.

Intercoſtales interni.

Intercartilaginei interni.

But if this were true, it would follow that theſe muſcles admitted their nerves in their taile and not in their head, ſeeing the nerve alwayes goes under the ribbe, and not above it.

Muſcles alwayes receive their nerves in their heads.

The laſt muſcle of the Cheſt, that is, the *Diaphragma* or Midriffe, is ſufficiently deſcribed before; wherefore it remaines wee deſcribe the muſcles of the Loines. Theſe are ſixe in number, on each ſide three, equall in thickneſſe, ſtrength and ſituation; one of theſe bends, and the other two extend the Loines; it is called by reaſon of the figure the *Triangulus*, or Triangular which bends the Loines, it aſcends from a great part of the hinde ſide of the Hanch-bone into the tranſverſe proceſſes of the Loines, and the laſt of the Cheſt on the inſide, for which cauſe it is made of fibers ſhort, long, and indifferent, anſwering to the neareneſſe or diſtance of the ſaid proceſſes. The firſt of the extenders is called the *Semiſpinatus*, becauſe even to the middle of its body it takes the originall from the ſpines of the holy-bones and Loines; this with its oblique fibers aſcends from all the ſaid ſpines to the tranſverſe proceſſes as well of the Loines as Cheſt. The other is called *Sacer*, the Holy-muſcle, becauſe it takes its originall from the Holy-bone, or the ſides thereof; it aſcends with its oblique fibers to the ſpines of the Loines, and of the eleaven lower Rack-bones of the Cheſt.

The midriffe.

The muſcles of the loines. They are three paires *Triangulus*.

Semiſpinatus.

Sacer.

CHAP. XIX.

Of the Muſcles of the Shoulder-blade.

Now we muſt deſcribe the muſcles of the extreme parts, and firſt of the Arme, taking our beginning from theſe of the Shoulder-blade. But firſt, that we may the better underſtand their deſcription, we muſt obſerve the nature and condition of the ſhoulder-blade. Therefore the blade bone on that part, which lies next unto the ribbs, is ſomewhat hollowed; wherefore on the other ſide it ſomewhat buncles out. It hath two ribbs, one above, another below: by the upper is ment nothing elſe than a border or right line, which looking towards the temples is extended from the exterior angle thereof under the collar-bone, even to the Proceſſe *Coracoides* which this ribbe produces in the end thereof: By the lower, the underſide which lies towards the lower belly and the ſhort ribbs.

The deſcription of the blade-bone, or ſhoulder-blade.

Beſides in this ſhoulder-blade we obſerve the *baſis*, head and ſpine. By the *baſis* we underſtand the broader part of the ſhoulder-blade, which lookes towards the

The baſis of the blade.

The head of the ſhoulder-blade.

backe-bone. By the head we underſtand the narrower part thereof, in which it receives the head of the Arme in a cavity, indifferently hollow, which it produces both by it ſelfe, as alſo by certaine griſtles, which there faſtened encompaſſe that cavity. This kinde of cavity is called Glene.

The ſpine of the blade.
The proceſſes *Acromion* and *Coracoides.*
The muſcles of the ſhoulder-blade.

This receives and containes the bone of the arme, by a certaine ſtrong ligament encompaſſing & ſtrengthening the joynt, which kind of ligament is common to all other joints; this ligament ariſes from the bottome of the cavity of the ſhoulder-blade, and circularly encompaſſes the whole joynt, faſtening it ſelfe to the head of the arme; there are alſo other ligaments beſides this, which encompaſſe & ſtrengthen this articulation. By the ſpine is ment a proceſſe, which riſing by little and little upon the gibbous part of the blade, from the *baſis* thereof where it was low and depreſt, becomes higher untill it ends in the *Acromion*, or upper part thereof. Nature hath made two productions in this bone (that is to ſay, the *Acromion* from the ſpine, and the *Coracoides* from the upper ſide) for the ſtrengthening of the articulation of the arme and ſhoulder-blade, that is, leſt the arme ſhould be eaſily ſtrained upward or forwards; beſides, it is faſtened to the clavicle, by the proceſſe *Acromion.*

Serratus minor.
Rhomboides.
Levator.
Trapezius.

The muſcles which move the ſhoulder-blade are ſixe in number, of which foure are proper, and two common. The firſt of the foure proper ſeated in the forepart, aſcends from the bones of five or ſixe of the upper ribbs, to the *Coracoides*, which it drawes forwards, and is called *Serratus minor*, that is, the Leſſer ſaw-muſcle; which that you may plainely ſhew, it is fit you pull the pectorall muſcle from the collar-bone, almoſt to the middle of the *Sternon*. The other firſt oppoſite againſt it, is placed on the fore ſide, and drawes its originall from the three lower ſpines of the necke, and the three upper of the Cheſt, from whence it extends it ſelfe, and ends into all the griſtly *baſis* of the ſhoulder-blade, drawing it backwards; it is called the *Rhomboides*. The third from its action, is called the *Levator*, or the heaver, or lifter up, ſeated in the upper part, it deſcends from the tranſverſe proceſſes of the foure firſt *Vertebræ* of the necke into the upper angle and ſpine of the blade. The fourth called *Trapezius*, or the Table-muſcle, is ſeated in the backe part, and is membranous at the originall, but preſently becoms fleſhy: it ariſes from almoſt all the backe-part of the head, from all the ſpines of the necke, and the eight upper *Vertebræ* of the cheſt, and then is inſerted by his nervous part, almoſt into the whole *baſis* of the blade, extending it ſelfe above the muſcles thereof, even to the midſt of its ſpine, where being fleſhy it is inſerted even to the *Acromion*, the upper part of the clavicle, and in ſome ſort to the upper ribbe. This muſcle hath a threefold action, by reaſon of its triple originall. The firſt is to draw the ſhoulder-blade towards its originall, that is, to the nowle, and ſpine of the necke; the other is to draw it towards the backe, becauſe of the contraction of the middle or tranſverſe fibers which leade it directly thither; and the other is to draw it downewards by reaſon of the originall it hath from the fifth, ſixth, ſeventh, and eight ſpine of the *Vertebræ* of the Cheſt.

Latiſsimus.
Pectoralis.

But we muſt note that theſe diverſe actions are not performed by this muſcle, by the aſſiſtance of one onely nerve, but by more, which come into it by the ſpinall marrow, by the holes of the *Vertebræ*, as well of the necke as the cheſt, from whence it takes the originall. For the two other which are the common muſcles of the blade, and arme, or ſhoulder; we will deſcribe them with the muſcles of the ſhoulder or arme: for one of theſe which is called the *Latiſsimus*, that is, the broadeſt, aſcends from the holy-bone to the ſhoulder-blade and arme.

The other named the *Pectoralis* coms from the *Sternon* and collar-bone to the ſhoulder-blade and arme.

CHAP. XX.

The Deſcription of the Hand taken in Generall.

NOW it beſits us to to deſcribe in order the muſckes of the arme; but firſt we muſt know, what it is that we call the arme. But ſeeing that cannot fitly be underſtood, unleſſe 1. we know what the hand is, ſeeing that the arme is a part of the hand; therefore firſt we muſt define what a hand is, and then devide it into its parts. Therefore the hand is taken two manner of wayes, that is, generally and ſpecially.

The hand generally taken, ſignifies all that which is contained from the joyning of the arme to the ſhoulder-blade, even to the ends of the fingers. But in particular it ſignifies onely that which is comprehended from the furtheſt bones of the cubit, or the beginning of the wreſt, to the very fingers ends.

What is meant by the hand in generall.

Therefore the hand in generall is an inſtrument of inſtruments made for to take up and hold any thing. It is compoſed of three great parts, that is, of the Arme, Cubite, and Hand, vulgarly, and properly ſo called; but the hand taken thus in particular is againe devided in three other parts, the *Carpus* or *Brachiale*, the Wreſt, the *Metacarpium*, or *Poſtbrachiale*, the afterwreſt, and the fingers; all theſe parts (ſeeing each of them are not only organicall parts, but alſo parts of organicall parts) are compoſed of all, or certainely of the moſt of the ſimular parts; that is, of both the skinnes, the fleſhy pannicle, the fat vaines, arteries, nerves, muſcles or fleſh, coats both common aud proper, bones, griſtles and ligaments, all which we will diſcribe in their order.

But firſt I thinke good to admoniſh you of the differences of the hand taken from the ſite thereof; and theſe differences are ſixe in number, the fore, the hinde, the internall, the externall, the upper and lower ſide or part thereof.

The differences of the hand from the ſite thereof.

By the fore we meane that part which lookes directly from the thumbe to the ſhoulder: by the hinde, we underſtand the part oppoſite to it, which from the little finger lookes towards the baſis of the ſhoulder-blade. By the inſide we ſignifie that part which lies next to the ſides of the body, when the hand retaines its naturall ſite; by the outſide, the part oppoſite to it. The upper and lower ſide you may know by the very naming thereof.

The hand properly ſo called is devided into five fingers, that ſo it may hold and take up bodies of all figures, as round, triangular, ſquare and the like, and gather up the leaſts bodies with the fingers ends, as needles, pins, and ſuch like.

Why the hand is devided into ſo many fingers.

Nature hath beſtowed two hands upon us, that ſo they may helpe each other, each moving to each ſide. But for the taking up and holding of ſmall bodies it was fit, that the fingers of their owne nature ſoft, ſhould be armed with nailes, that conſiſting of ſoft fleſh and an hard naile, they might ſerve for all actions; for the naile is a ſtay to the ſoft fleſh, which otherwiſe would turne away in meeting with an hard body; the uſe of the nailes is to ſcratch, ſhave, and pull off the skinne, to rend, pinch, and plucke aſunder ſmall bodies. They have not bony hardneſſe, that ſo they might not breake, but bend.

Why the nailes are added to the ſoft fleſh of the fingers.

Yet other creatures have hard nailes, to ſerve them in ſtead of weapons. Their figure is round, becauſe ſuch a figure is leſſe obnoxious to externall injuries; and by reaſon they are ſubject to wearing, they grow continually.

Why the nailes grow continually.

Nature hath placed fleſh on the inner and ſide part of the fingers, ſo to preſſe more ſtraitly, the things they once take hold of, ſo that by holding them cloſe together, we can hold water that it may not runne out. The length of the fingers is unequall, that when they are opened and ſtretched forth, they make as it were a circular figure; for ſo it comes to paſſe, that the hand can hold all bodies, but eſpecially round.

It remaines that we proſecute the diſtribution of the veines, arteries, and ſinewes, which runne over all the parts of the hand taken in generall and particular, whereby wee may more commodiouſly hereafter handle all the proper parts thereof.

Chap. XXI.

The Diſtribution of the Subclavian veine, and firſt of the Cephalica, or Humeraria.

The Cephalicke vaine.

TWo large veines deſcend from the Subclavian, the one from the lower ſide, the other from the higher. Yet ſometimes, and moſt uſually, both theſe proceede from the ſame common orifice, as in men of a low ſtatnre in the arme. The one of theſe is called the *Axillaris*, the other the *Humeraria*, or *Cephalicke*; therefore this Cephalicke paſſing forth of the Subclavian runnes ſuperficially along the foreſide betweene the muſcle *Deltoides*, and the Tendon of the pectorall muſcle, and deſcends in the midſt betweene the common coate of the muſcles and the fleſhy pannicle, even to the bending of the cubite, where in leane bodies it is plainely to be ſeene, whereas in fat bodies it is hardly to be perceived, being as it were buried in abundance of fat. This veine having in its deſcent, ſent forth ſome ſmall branches, both to the skinne, as alſo to certaine muſcles over which it runs, is devided into two, a little above the outward protuberation of the arme. One of the branches into which it is devided deſcending obliquely to the fore part of the cubite, a little below the bending of the cubite, it meets, and is united with the like branch in the ſame place, as ſhall be ſhowne hereafter.

The median veine.

How by opening the median veine, you may draw more or leſſe bloud from the head or liver.

That which ariſes from this concourſe, is called the median veine, becauſe it ariſes from two branches, and is ſeated betweene them. They uſually open this median veine in the diſeaſes of the head and liver, which require Phlebotomy; but if it ſhall not be ſufficiently manifeſt, when you judge it muſt be opened, for a generall evacuation of the whole body; you may cut one of theſe branches, by whoſe concourſe it is made, which you ſhall think the fitter; and becauſe each branch drawes from the next parts, according to the ſtraightneſſe of the fibers, rather than from the oppoſite ſide; if you would evacuate the head, and liver equally, by opening either of theſe branches; it is convenient that opening that branch (for example) which comes from the Cephalicke, you preſently lay your thumbe upon it, untill you ſuppoſe, you have drawne a juſt quantity of bloud from the liver, by the *Baſilica*, or liver veine; which done, you may take off your thumbe, and ſuffer the bloud to follow freely, by the open branch of the Cephalicke, untill you have drawne as much bloud as you ſhall judge requiſite; otherwiſe you will draw it but from one part, to wit, the head. So you ſhall evacuate it onely from the liver, if you open the branch which comes from the *Baſilica*, and concurs to the generation of the median.

Moreover, when there is neede to open the *Baſilica*, and it ſhall be no where conſpicuous, the Cephalicke or median being eaſie to be diſcerned at the ſame time, you may in ſtead thereof open the median, or if it be not to be found, the Cephalicke, preſſing but the trunke thereof with your thumbe, as we ſaid before, leſt the head ſhould be evacuated in ſtead of the liver. You may doe the ſame in the *Baſilica*, if when there ſhall be neceſſitie to open the Cephalicke, it ſhall not appeare. Moſt of thoſe which at this day open a veine, in ſtead of the median, open that branch of the *Baſilica* which aſcends, together with the Cephalicke to make the median. But you muſt underſtand that the median deſcends betweene the two bones of the cubit, even to the end thereof, and then devided into many branches, it is at length ſpent on the backe of the hand behinde the thumbe, the fore and middle fingers, or the afterwreſt. Sometimes it runs backe into the following branch, and then at the wreſt it departs from it, to be beſtowed upon the forementioned parts. The other branch of the Cephalicke, which we may call the fore and outward Cephalicke, deſcending directly downe to the midſt of the wand, thence wanders overthwart into the hinde part of the arme, where encreaſed with a branch from the *Baſilica*, it is diſtributed over all the backe of the hand, which with the median it nouriſhes. But the branches of theſe veines doe ſo run through the forenamed parts, that by the way, they yeeld them neceſſary proviſion.

Chap. XXII.

The Deſcription of the Axillary veine.

The axillary is devided into

The deepe axillary, and outward axillary.

THe Axillary ariſing at the inſertion of the pectorall muſcle, or a little higher, after it hath produced the two *Thoracicæ* it is devided under the tendon of that muſcle into two faire branches, that is to ſay, into the inner deepe Axillary, and the ſkinne or outward axillary. The deepe or inner having ſtill for his companion in his deſcent, the axillary artery, and the nerves of the third conjugation, after it hath produced the ſmall externall muſculous of the arme, it goes into the bending of the elbow, where running ſomewhat deepe with the artery and nerve into the muſcles of the cubite, it is devided into three other branches, of which one deſcending with the wand, ſlides under the ring, into the inner ſide of the hand, and hath beſtowed two ſmall branches on the thumbe, two others on the fore, and one upon the middle finger, ſo that all of them aſcend by the ſides of theſe fingers, the other deſcending with the artery, as the former alongſt the cubite, ſends branches to the reſt of the fingers, like as the former. The third goes on the foreſide betweene the two bones even to the wreſt, and the ſquare muſcle.

But you muſt note that the veines of which we now treate, doe not onely make theſe deviſions mentioned by us, but infinite others beſides, as well in the parts which they goe to, as alſo in the inner muſcles of the hand which they nouriſh.

And thus much of the internall and deepe axillary veine. For the externall or skin Axillary (which firſt appeares under the ſkinne, eſpecially in leane bodies, a little above the inward production of the arme) it is devided in that place into two branches, the one whereof deſcending to the bending of the arme meets, and is united with the Cephalike branch, ſooner or later, that ſo it may produce the median, as we formerly mentioned.

The other branch [having ſent forth many ſhoots of a different length and thickneſſe, as well into the ſkinne, as into the other neighbouring parts, deſcending alongſt the lower ſide of the bone of the cubite, properly ſo called, is at length ſpent upon the fore and outward Cephalicke branch, which we ſaid deſcended alongſt the wand; and thus united, they runne over all the hand, where in the right hand, betweene the middle and fore finger, they make the *Salvatella*; but in the left, in the ſame place, they produce the *Splenitica*.

The *Salvatella* and *Splenitica*

But alwayes remember, (if in diſſection you finde any thing otherwiſe than wee have delivered it) that the diſtribution of the veſſels is ſo various (eſpecially in the hands) that there can no certaine rule be delivered thereof.

Chap. XXIII.

The Diſtribution of the Axillary Artery.

THe Axillary artery from the firſt originall, which is preſently after the two *Thoracicæ*, deſcending betweene the muſcle called *Biceps*, or the two headed muſcle, and the *Brachiæus*, with the deepe axillary veine, diſtributes a large branch amongſt the outward muſcles of the arme, which extend the cubite, and is ſpent in the externall muſcles of the ſame, which ariſe without, from the productions of the arme.

And this is called the *Ramus Muſculus*, or Muſculous branch, as alſo the veine that accompanyes this Arterye. Then this Arterye when it comes to the bending of the cubite, thruſting it ſelfe into the muſcles bending the fingers, communicates certaine branches to the parts pertaining to the dearticulation of the cubit with the ſhoulder, and other parts there ſituate, as it did in the upper parts, by which it deſcended hither. Verily it may it may be a generall rule; that every veſſell ſends or beſtowes certaine portions thereof by the way to all the parts by which it paſſes. But if you ſhould aske, why I have not proſecuted theſe productions; I would anſwer; I never intended, to handle other than large and faire branches of veſſels, by raſh inciſion of which, there may happen danger of death or a diſeaſe. For it would be both an infinit and needles buſines to handle all the ſmall divarications of the veines, arteryes and nerves. Therfore this Artery ſunke into theſe muſcles, when it comes almoſt to the midſt of the Cubit, preſently or a little after it is divided into two large branches, the one of which alongſt the wand, & the other alongſt the Cubite is carryed into the hand on the inſide under the Ring. For both theſe branches are diſtributed and ſpent upon the hand after the ſame manner as the branches of the internall Axillary veine, that is, having ſent by the way ſome little ſhoots into the parts by which they paſſe, at the length the branch which deſcends by the Wand of the remainder therof, beſtowes two ſprigs upon the Thumbe, on each ſide one, & two in like manner on the fore finger, and one on the midle; the other which runs alongſt the Ell, performes the like office to the litle and the midle or ring finger, as you may ſee by diſſection.

An Aontomicall Axiome.

Chap. XXIIII.

Of the Nerves of the Necke, Backe, and Arme.

The 7 paire of nerves of the necke.

NOw we ſhould handle the ſinewes of the Arme, but becauſe theſe proceed from the Nerves of the Necke and Backe, I thinke it fit therefore to ſpeake ſomething of them in the firſt place.

The firſt paire.

Therefore from the Necke there proceed ſeven paire of Nerves, the firſt of which proceeds from the nowle bone, and the firſt *Vertebra* of the necke; as alſo the firſt paire of the Backe from the laſt *Vertebra* of the Necke and the firſt of the Cheſt. But all theſe Nerves are divided into two or more branches of the firſt paire (that is to ſay, on each ſide) goe, the one to the ſmall right muſcle, aſcending from the firſt racke-bone of the necke to the nowle bone, the other to the long muſcle on the foreſide of the necke.

The ſecond paire.

The branches of the ſecond paire are diſtributed, ſome with a portion which they receive from the third paire over all the skin of the head; the two others go as well to the muſcles, which are from the ſecond *Vertebra* to the backe part of the head, and from the ſame to the firſt *Vertebra*, as alſo to the long muſcle before mentioned.

The third paire.

One of the third paire of Sinewes is communicated to the head, as we ſaid before, but others to the Muſcles which extend, or erect the head and the Necke; there is alſo one of theſe diſtributed into the neighbouring ſide muſcle and part of the long.

The fourth paire.

The fift paire.

The nerves of the fourth paire go, one to the muſcles aſwel of the neck as the head, & to the broad muſcle; the other after it hath ſent ſome portiõ therof into the long muſcle & the ſide muſcles of the necke, it deſcends with a portion of the fift and ſixt paire to the Midriffe. One of the branches of the fift paire is beſtowed on the hinde muſcles of the necke and head, the other upon the longe muſcle and Midriffe; the third is communicated to the *Levatores*, or Heaving muſcles of the Arme and ſhoulder.

The ſixt paire

One of the Nerves of the ſixt paire goes to the hinde muſcles of the Necke and head, another to the Midriffe, the third with a portion of the ſeventh paire of the necke, and of the firſt and ſecond of the Cheſt goe to the Armes and heaving muſcles of the ſhoulder-blade.

The ſeventh paire.

One of the branches of the ſeventh paire runs to the broad muſcle and to the neighbouring muſcles both of the necke and head; another encreaſed with a portion of the fift and ſixt paire of the necke, and a third joyned to the ſecond and third paire of the Cheſt deſcending into the Arme goe to the hand.

But you muſt note that the Muſcles which take their originall from many *Vertebræ*, whether from above downwards, or from below upwards, admit Nerves not onely from the *Vertebræ*, from whence they take their originall, but alſo from them which they come neere in their deſcent, or aſcent.

The 12. pairs of Nerves of the Cheſt.

There paſſe twelue conjugations of Nerves from the Rack-bones of the Cheſt.

The firſt paire

The firſt entring forth from betweene the laſt Racke-bone of the necke and the firſt of the Cheſt, is divided (that is, on each ſide, each Nerve from his ſide) into two or more portions, as alſo all the reſt. Therefore the branches of this firſt conjugation goe ſome of them to the Armes, as we ſaid before, others to the muſcles as well theſe of the Cheſt, as others ariſing there, or running that way.

The ſecond paire.

The branches of the ſecond conjugation are diſtributed to the ſame parts, that theſe of the firſt were.

The other paires.

But the branches of all the other conjugations even to the twelfth, are communicated, ſome to the intercoſtall muſcles running within under the true ribs even to the *Sternon*, and under the baſtard ribs even to the right and long muſcles; and the Coſtall Nerves of the ſixt conjugation are augmented by meeting theſe intercoſtall branches by the way as they deſcend by the roots of the Ribs. Other particles of the ſaid Nerves are communicated to the muſcles as well of the Cheſt, as ſpine, as the ſame Muſcles paſſe forth, or runne alongſt by the *Vertebræ*, from whence theſe nerves have either their originall, or paſſage forth.

The Nerves which are carryed to the Armes.

Having thus therefore ſhewed the originall of the Sinewes of the Arme, it remaines that we ſhew their number and diſtribution.

Their number is five or ſixe; proceeding from the fifth, ſixth, and ſeventh *Vertebra* of the necke, and the firſt and ſecond of the Cheſt. The firſt of which not mixed with any other from the fifth *Vertebra* of the necke, goes to the Muſcle *Deltoides* and the skin which covers it.

The other 4 or 5 when they have mutually embraced each other, not onely from their firſt originall but even to the ſhoulder, where they free themſelves from this convolution, are diſtributed after the following manner.

The firſt and ſecond deſcending to the Muſcle mentioned a litle before, and thence ſometimes even to the hand, is by the way communicated to the Muſcle *Biceps*, and then under the ſaid Muſcle it meets and is joyned with the third Nerve. Thirdly it is communicated with the Longeſt muſcle of the Cubite, in the bending whereof it is divided into two branches deſcending alongſt the two bones of the Cubit, untill at laſt borne up by the fleſhy pannicle it is ſpent upon the skin and inner ſide of the hand.

The third lower than this, is firſt united with the ſecond, under the Muſcle *Biceps*, then ſtraight way ſeparated from it, it ſends a portion thereof to the Arme which lyes under it, and to the skin thereof; laſtly at the bending of the Cubit on the fore ſide, it is mingled with the fift paire.

The fourth, the largeſt of all the reſt, comming downe below the third branch under the *Biceps* with the internall Axillary veine and Artery, is turned towards the outward and backe part of the Arme, there to communicate it ſelfe to the Muſcles extending the Cubit, and alſo to the inner skin of the Arme and the exteriour of the Cubit; the remainder of this branch when in its deſcent it hath arrived at the joynt of the Cubit, below the bending thereof it is divided into two branches, the one wherof deſcending alongſt the Cubit is ſpent on the outſide of the Wreſt; the other aſſociating the Wand is on the outſide in like manner in two branches beſtowed upon the Thumbe, and in as many upon the fore finger, and by a fift upon the middle finger though more obſcurely.

The fift branch being alſo lower than the reſt, ſliding between the muſcles bending and extending the Cubite, when it comes behinde the inner protuberation of the Cubite (in which place we ſaid before the third branch meets with this) it is communicated to the internall muſcles of the ſame, and then divided into three portions one of which on the outſide alongſt the middle of the Cubite goes in two ſprigs to the litle finger, & ſo many to the middle finger, and one to the Ring finger; the other two, the one without and the other within the Ring, goe to the hand, where after each of them hath beſtowed what was requiſite on the muſcles of the hand, they are waſted into other five ſmall portions, of which theſe which are from that portion which deſcends without the Ring, ſend two ſprigs to the litle, two to the fore and one to the middle finger; but theſe which come from that which paſſes under the Ring, by ſuch a diſtribution communicates it ſelfe to other fingers, as two ſprigs to the thumbe, two to the fore and one to the middle finger. The ſixt the loweſt and laſt runs betweene the skin and fleſhy Pannicle, by the inner protuberation of the Arme, and then is ſpent upon the skin of the Cubit.

CHAP. XXV.

The deſcription of the bone of the Arme, and the Muſcles which move it.

The greatneſſe and figure.
The Appendix of the Arme.
The proceſſes of the Arme.

BEcauſe we cannot perfectly demonſtrate the originall of the muſcles of the Arme, (eſpecially of the two Arme muſcles) not knowing the deſcription of this bone; firſt therefore we will deſcribe it, then returne to the originall of the muſcles ariſing from thence. The bone of the arme is the greateſt of all the bones in the body, except the Thigh-bone; it is round, hollow and filled with marrow, with a great Appendix or head on the top thereof, having an indifferent necke, to which it is knit by *Symphyſis*, for appendices are no otherwiſe united to their bones. In the lower part thereof it hath two proceſſes, or protuberations, one on the fore ſide, another on the hinde, betweene which ſwellings there is a cavity like to halfe the compaſſe of a wheele, about which the Cubit is moved. The extremityes of this cavity ends in two holes, of which one is the more externall, the other more internall: theſe cavityes receive the heads of the Cubite, that is, the fore, or internall receives the fore proceſſe when the arme is bended inwards, but the externall or hinder the exteriour, as it is extended.

For the head of the arme it hath a double connexion, the one with its owne necke by *Symphyſis*, that is, a naturall union of the bones without any motion; the other with the lightly ingraven cavity of the ſhoulder-blade, which we call *Glene*, by that kinde of Dearticulation which is called *Arthrodia*; this connexion is made firme and ſtable by the muſcles deſcending into the arme from the ſhoulder-blade, as alſo by the proper Ligaments deſcending from the circle and brow of the cavity of the *Acromion* and *Coracoides* to this head of the arme; this ſame head of the arme is, as it were more cleft and open on the inner ſide, than on the fore ſide, that ſo it may give way to one of the Ligaments comming from the ſhoulder-blade to the muſcle *Biceps*. For aſmuch as belongs to the lower end of the bone of the arme (which we ſaid hath two proceſſes) we may ſay that it is faſtened to the bones of the Cubit by two ſorts of articulation, that is, by *Ginglymos* with the Ell or proper bone of the Cubit, and by *Arthrodia* with the *Radius* or Wand, which in a lightly engraven cavity receives the fore proceſſe of the arme, and is turned about it for the motion of the hand. The hinder proceſſe is chiefly added for the ſafety and preſervation of the veines, arteries and nerves.

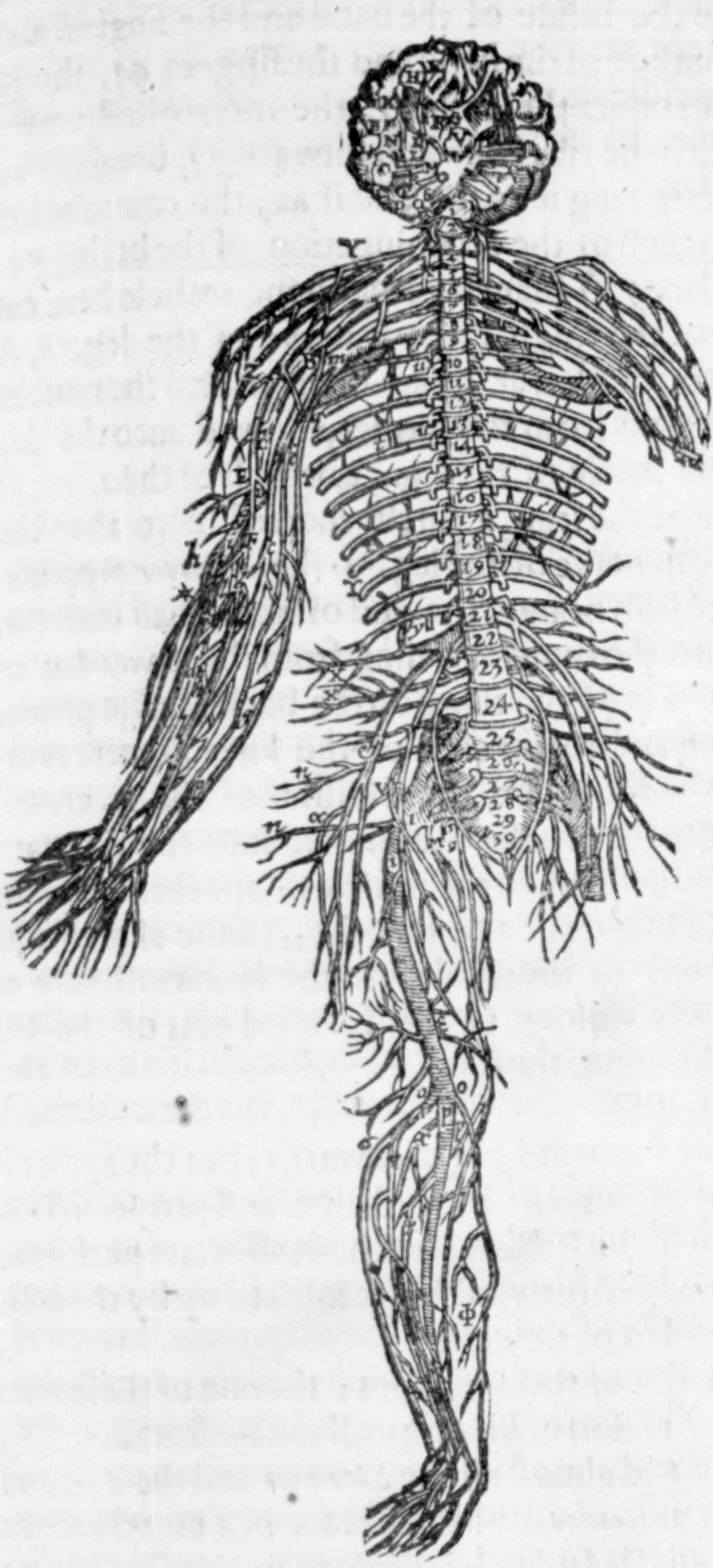
The figure of the Arme.

Theſe things thus ſhowne, it is worth our labour to know the figure of the arme it ſelfe, as it lyes betweene the forementioned appendices and proceſſes, that in the caſe of a fracture, we may know how conveniently to reſtore it; therfore firſt we muſt underſtand, that this bone is ſomwhat bended and hollowed on the inſide under the cleft of the head thereof, but bunching out on the out and fore ſide.

The 8 muſcles thereof.

Wherefore ſeeing it muſt be moveable forwards and backewards, upwards and downewards, nature for the performance of ſo many motions hath furniſhed it with eight muſcles, which are ſixe proper and two common with the ſhoulder-blade. Of which number two move it forwards, two backwards, two upwards and downewards Which muſt not be underſtood ſo, as that theſe two Muſcles ſhould move it directly forwards inclining either upwards, nor downewards; and the other two ſhould move

Table 24. ſheweth the Braine together with the After-braine, the ſpinall marrow and the Nerves of the whole body.



A, That part of the braine that is at the noſethrils.
B, That part which is at the ſide of the ventricles.
C, The back part of the braine.
D, The *Cerebellum* or After-braine.
E, The Mamillary proceſſe in the right ſide.
F, The originall of the opticke nerve.
G, Their conjunctions.
H, The coate into which the opticke nerve is extended.
I, The ſecond paire of the ſinewes of the braine.
K, The leſſer roote of the third conjugation.
L, The thicke roote of the ſame conjugation according to the common opinion.
M, The fourth conjugatiõ of the ſinews
N, The leſſer roote of the fift paire.
O, The bigger roote of the ſame paire.
P, The ſmall membrane of the eare which they call the *Tympany*.
Q, The lower branch of the bigger roote of the fift conjugation.
S, The ſixt paire of ſinewes.
T, The ſeventh paire.
V, The beginning of the ſpinall marrow out of the middle of the baſis of the braine.
X, The right ſinew of the midriffe cut off.
Y, A branch from the fift paire creeping to the top of the ſhoulder.
Z, The firſt nerve of the arme from whence there goeth a branch to the skin.
A, The ſecond nerve of the arme, and a branch there from into the firſt muſcle of the Cubite.
B, The third nerve of the arme and a branch going to the skin on the outſide.
C, A branch from the 3. nerve to the 2. muſcle of the Cubite.
D, The congreſſe or meeting of the ſecond nerve with the third.
E, A ſmall branch from the 3. nerve to the 2. muſcle of the *Radius*.
F, The diſtribution of the ſecond nerve into two branches.
* The leſſer branch of this diviſion lengthened out to the skin as far as the thumbe.
a, The place of the ſpinall marrow where it iſſueth out of the braine. 1, 2, 3, &c. Thirty paires of nerves ariſing from the ſpinall marrow are here noted by their Char. that is to ſay, 7. of the necke, 12, of the Cheſt, 5. of the loynes and 6, of the holy-bone.
b, The thicker branch of the 2, nerve divided into 2, parts.
c, Branches of the 3, nerve ſprinkled here and there.
d, Nerves from the third paire to the thumb, the forefinger and the middle finger.
ee, The 4, nerve of the arme. *f*, The paſſage hereof through the inſide of the ſhoulder.
g, A tripartition of this branch where it toucheth the Cubit. *bb*, A branch diſtributed from

from the 4. nerve to the outward skin of the Cubite. *i*, the upper branch of the diviſion of the 4. nerve. **kk**, A branch of *i*, reaching to the outſide of the hand. *ll*, the lower branch of the diviſion of the 4. nerve paſſing through the backſide of the Cubite. *m*, the 5. nerve of the arme. *n*, Branches of this nerve diſperſed here and there, *oo*, A branch of the 5. nerve reaching to the inſide of the hand and the fingers. *p*. A ſurcle of the branch *o*, derived to the outſide of the hand and the fingers. *qq*, the 6, nerve of the arme and the courſe thereof under the skin. *rr*, the intercoſtall nerves there cut off where they are together with the ribs reflected forward. *ſſ*, branches on each ſide running backward. *tt*, Nerves attaining unto the Cheſt. *uu*, the commixtion of the nerves *rr*, with the deſcending branch of the 6. conjugation of the braine. *xx*, Nerves from the loynes led unto this place. *y*, A branch going to the teſticle here cut off. *z*, A nerve reaching to the 1. muſcle of the thigh. ϛ, the 1. nerve of the leg. αβ, A ſurcle of the former nerve derived to the skin at α, and inſerted into the muſcles at β. γ, the 2. nerve of the leg. δδδ, A nerve from the former, allowed unto the skin as low as to the foot, and paſſing along the inſide of the leg. ε, a branch of the 2. nerve running unto the muſcles. ζ, the 3 nerve of the leg. η, a ſurcle thereof unto the skin. θ, another ſurcle unto the muſcles. ιι, the 4. nerve of the leg. κκ, the *anterior* propagations of the nerves proceeding from the holybone. λ, the end of the ſpinall marrow. μ, a branch from the 4 nerve inſerted into the muſcles ariſing from the *Coxendix* or hip bone. ν, another branch going to the skin of the thigh on the backſide. ξ, a propagation derived to the 4. muſcle of the leg and to the skin of the knee. οο, nerves attaining to the heads of the muſcles of the foote. ϖ, the diviſion of the 4: crurall nerve into two trunks. σ, a branch from the trunke π, diſperſed into the outward skin of the leg. τ, a ſurcle of the trunke π, derived to the muſcles. υ, another ſurcle to the skin of the leg on the foreſide. , a branch of the truncke ρ, to the skin of the inſide of the leg and of the foot. χ, a ſurcle of the trunke ρ, to the hindmoſt skin of the leg. ψ, a branch of the whole trunke ρ, led along to the forward part of the leg and the foot: ω, the deſcent of the trunke ρ, into the foot.

it ſo upwards, as it ſhould incline neither foreward, nor backwards; but thus, that it cannot be moved neither to this nor that part unleſſe by the helpe and proper action of this, or that muſcle. Thus therefore if the Pectorall with his aſſociate performe their duty or action, the arme is alwayes moved forwards, as it is lifted up by the action of the *Deltoides* and his companion, and ſo of the reſt.

The originall and inſertion of the pectorall muſcle.

But to come to the originall and inſertion of theſe muſcles; the one of theſe two which move the arme forwards called by reaſon of his originall, the Pectorall, ariſing from more than halfe of the Collar bone, and almoſt all the *Sternon* and the 6, 7. and 8, Rib, goes up and faſtens it ſelfe to the *Coracoides*, by a membrane or a membranous tendon ſufficiently ſtrong (for which cauſe it is ſaid to be common to the ſhoulder & arme) and it goes into the arme betweene the muſcles *Deltoides* and *Biceps* with a ſtrong tendon compoſed of fibers croſſing each other, of which ſome deſcend from the Collar-bone and the upper part of the *Sternon*, others aſcend from the lower originall hereof, that is, from the 6, 7, and 8, Ribs: and although the action of this muſcle be diverſe, by reaſon of the diverſity of its fibers ariſing from divers places, yet alwayes it drawes the arme forwards, whether it be moved upwards, downwards, or to the Breſt; the other which is his companion deſcends from the whole lip or brow of the ſimous or hollow part of the Blade, which it fils in the forepart of the arme neere the head thereof. For the two *Levatores*, or the Lifters up of the arme, the firſt named

The *Deltoides*

Deltoides deſcends from almoſt halfe the Clavicle, the proceſſe *Acromion* and all the ſpine of the ſhoulder-blade into the foreſide of the arme the bredth of foure fingers below the joynt. It hath divers actions according to the diverſity of the fibers, as alſo every muſcle hath; yet howſoever it is contracted, whether by the fibers from the clavicle alone, or by the ſpinall alone, or by both at once, it alwayes lifts and heaves the arme upwards. The other which is his aſſociate deſcends from the gibbous part of the Shoulder-blade conteined betweene the upper rib therof & the ſpine between

The *Epomis*, or *Scapularis*.

the proceſſes *Acromion* and *Coracoides*, to the neck of the arme; and this we will call the *Epomis* or *Scapularis*, that is, the ſhoulder Muſcle. But the firſt and larger of the two muſcles, which draw the arme backwards, ariſes from the greateſt part of the utter lip of the gibbous part of the ſhoulder-blade, which is under the ſpine therof, & lying upon the blade it ſelf, it goes into the hind part of the arme above the neck thereof. The other which is cōtiguous to it & his partner in working, but leſſer, paſſes from the upper and exteriour part of the lower rib of the ſhoulder-blade, and thence as it were in ſome ſort extending it ſelf upon the gibbous part therof neere unto that rib, it goes into the arme. This muſcle ſeemes to be the ſame with the former, being fleſhy without even above the top of the ſhoulder. One & the leſſer of theſe two which draw downwards, enters out from the ſtreight line of the lower Rib of the blade, & goes into the lower part of the arme about the neck therof. The other called the *Latiſsimus* or broadeſt, aſcends from the ſpines of the holy-bone, of the Loynes, & often alſo from the nine lower of the Cheſt, by the lower corner of the ſhoulder-blade into which it is inſerted by a membranous tendon, as alſo it is into the inner part of the arme neere unto the necke by another ſtrong tendon; wherupon this muſcle is called a common muſcle of the ſhoulder and arme. But when this muſcle happens to be wounded, the arme cannot eaſily be ſtretched forth, or lifted up.

CHAP. XXVI.

The Deſcription of the bones of the Cubit and the muſcles moving them.

AFter theſe muſcles, follow thoſe which bend & extend the cubit, but becauſe their inſertion cannot be fitly demonſtrated, unleſſe the bones of the cubit be firſt deſcribed; therefore firſt of all we will deliniate the bones themſelves. But verily leſt this doubtful word cubit ſhould cauſe obſcurity, firſt we muſt note, that it hath a threefold ſignificatiō, for ofttimes it is uſed for al that part of the hand which lies between the arme & wreſt, oft times for the lower bone of this part, ſomtimes for the upper part of this bone which is turned within the Orbe or Cavity of the arme (no otherwiſe than a cord in the wheele of a Pulley) and this is called the *Olecranon*. Here truly we uſe this word Cubit in the firſt ſignification. Wherfore we ſay the cubite is compoſed of two bones, the one of which we call the *Radius* or Wand, or the leſſer *Focile* of the Arme; the other we properly call the Cubit or Ell. Theſe two bones ſticke together at their ends being firmely bound together by ſtrong Ligaments; but the middle parts of them are a prety way diſtant from each other, & chiefly towards their lower ends, for the better ſcituation and paſſage of the muſcles and veſſells from the inner ſide, to the exteriour, as ſhall be ſhewed in fit place. The wand hath two *Epiphyſes* or Appendices, the one at the upper end, the other at the lower. The upper is round & hollowed on the ſurface like a baſon, it receives the fore proceſſe of the bone of the arme, bound to the ſame by ſtrong ligaments, deſcending as wel from that proceſſe of the arme, as the *Olecranon* into the circumjacent parts of this appendix of the VVand. This connexion is made for this uſe, that we may turne our hand upwards and downwards by the Cubit turned and twined about this proceſſe. But the lower appendix of this wand is hollowed on the inſide that ſo it might more commodiouſly receive the bones of the wreſt, but gibbous without, that it might be ſafer; now this wand is ſofter and thicker at the lower end, but leſſer and harder above, where on the inſide it hath a ſwelling out, wherby to receive the muſcle *Biceps*, beſides on the outſide of the middle therof it is ſomewhat gibbous and round, ſo to become more ſafe from the injuries of externall bodies; but it is hollowed, or bended on the inſide for the better taking or holding any thing in the hand. But that ſide which lyes next to the Ell is flatted for the fitter originall and ſeat of the muſcles; laſtly it is ſeated upon the bone of the Cubit, or Ell, juſt againſt the thumb. But the Ell, or bone of the cubit properly & particularly ſo called, hath in like maner two appendices, the one above, the other beneath. The upper which alſo is the greater, is fitted to the Orbe of the arme, in which it goes to & again for the extenſiō & bending of the arme, no otherwiſe than a rope runs in a pulley but that it turnes not abſolutly & perfectly round, which is cauſed by the two proceſſes of unequal bigneſſe, the which are therfore ſtaied in the holes or cavities of the bone of

What is ment by the Cubit.

What the *Olecranum* is.

The 2 bones of the Cubit.

The two Appendices of the wande,

The figure and ſite of the wande.

The 2 Appendices of the bone of the Cubit.

the arme, the greater proceſſe which we called *Olecranon* is letted by the exterior hole that ſo the extenſion of the arme can be no further, but the leſſer proceſſe by the inner hole makes the bending ther of the leſſe perfect. The Compoſure of theſe bones is by *Ginglymos*, & it is ſtrengthened not onely by common Ligaments comming from the muſcles, which move the bones themſelves, but alſo by proper Ligaments deſcending from the proceſſes of the arme & the lips of the holes and cavities ſtanding about the Appendix of the Cubit. The other lower and leſſer appendix is in ſome ſort hollow on the inſide for the fitter receiving the bones of the wreſt, but the outſide is round & ends in a point, whence it is called by the Greeks *Styloides*. But now this Ell (contrary in this to the wand) is thicker towards the arme, but ſlenderer towards the wreſt. And beſides in the thicker part therof it is hollowed or bended towards the inſide, & in the ſame place is gibbous or bunching forth on the out ſide; but it is round & ſtraight, unleſſe on that ſide which lyes next the wand, for the reſt, it is hollow & full of marrow like the wand. The ſite of the *Radius* or wand is oblique, but that of the Cubit or Ell is right, that the arme might be the better & more eaſily moved; becauſe the motion by which the arme is extēded & bēded is according to a right line, but that by which the inſide of the hand is turned upwards & downwards, is performed obliquely & circularly. Wherfore it was expedient that the wand ſhould be oblique, & the cubit ſtreight for the cubit-bone is appointed for to extend & bend the arme; but the wand to performe the wheeling & turning about therof, & this is the cauſe that it was fitting ther ſhould be a different connexion of theſe bones with the arme. Theſe things were fitting to be ſpoken concerning the nature of theſe bones, that in the cure of fractures we may worke the more ſafely & happily, taking indication from that which is agreeable to nature: wherfore now it remaines that we come to the deſcription of the muſcles which are ſeated in the arme, the cubit-bone, or Ell. Theſe are 4, in number, two extending it, & two bending it. The firſt of the Benders is called *Biceps*, by reaſon of its two heads; the one wherof deſcends from the *Coracoides*, that other from the lip of the cavity of the ſhoulder-blade by the fiſſure or clift of the head of the bone of the arme. Theſe two heads under the necke of this arme becoming fleſhy, are firmely united at the belly & midſt of the arme, & thus united are at length implanted by a ſtrong tendon to the inner protuberation of the wand. The other is called the *Brachiæus*, by reaſon of the ſtraite coherence therof with the bone of the arme; this faſtened under the *Biceps* deſcends obliquely on the backe and upper part of the bone of the arme into the top of the wand and the inner ſide of the Ell. But the firſt of the extenders is called the *longus* or Long muſcle, this deſcends from the lower Rib of the ſhoulder, and cleaving to the bone of the Arme goes thither (faſtened and as it were alwayes moſt ſtraitly joyned with his fellow muſcle, ſpecially nere the Cubite) where you ſhall preſently heare. The other termed the *Brevis* or ſhort Muſcle, being the companion of the long, deſcends on the hinde part of the necke of the bone of the Arme, as it were growing to and lying under the former long muſcle, ſo that making one common broad Tendon outwardly fleſhy, inwardly nervous, they are inſerted into the *Olecranum*, ſo by mutuall aſſiſtance to extend the Cubite.

The figure of the Cubit bone or Ell.

The muſcles moving the Cubite.

The *Biceps*, or 2 headed muſcle.

The *Brachiæus*.

The *Longus*.

The *Brevis*.

Chap. XXVII.

The Deſcription of the Bones of the Wreſt, Afterwreſt and fingers.

WE ſaid before that the Hand taken more particularly and properly, is divided into the Wreſt, afterwreſt & fingers, & that the hand in this ſignification is bounded by the ends of the bones of the cubit and fingers. All the parts of the wreſt, which it hath cōmon with the afterwreſt, have bin already alſo plentifully explaned, this only remaines to be noted, that the skin aſwell of the hands as of the feete, is of a middle nature betweene pure fleſh and pure skin, no otherwiſe than that which covers the forehead, but that this which covers the palmes of the hands & ſoles of the feet is unmoveable; But it is moſt thicke, eſpecially on the feete, leſt it ſhould be eaſily offended by continuall going. Beſides the common parts, the wreſt is compoſed of eight ſmall bones mutually knit together in a

What the Hand properly ſo called is.

a certaine order, and by *Diarthroſis* with the two bones of the Cubite, but mutually and amongſt themſelves by *Synarthroſis*, by interpoſition of Griſtles and Ligaments aſwell common, that is, comming from the muſcles, as proper, deſcending alwayes from the upper to the lower. But theſe ſame bones are ſome leſſe than otherſome, beſides they are hard and without marrow, gibbous on the outſide for the ſecurity and comlineſſe of the hand, but hollow on the inſide for to give way to the tendons going into the fingers. Theſe bones are diſpoſed in two rankes. The firſt Ranke containes onely three, but the ſecond five. The three of the firſt Ranke ar thus arayed, or placed, that one of them may receive the Appendix *Styloïdes* of the Cubite; the other the Ell and the Wand together, and the third may be received by the Wand. But three of the five bones of the ſecond order ſuſteine the foure bones of the afterwreſt & are knit to the ſame by *Synarthroſis*, after which manner of connexion they are joyned to the bones of the firſt ranke; the fourth ſuſtaines the firſt bone of the Thumbe to which alſo it is coarticulate by *Synarthroſis*; the fift and laſt is ſeated on the inſide againſt the Ell, cheifly above that bone of the firſt order, which receives the Appendix *Styloïdes* of the Cubite, this is the leaſt and weakeſt of them all by reaſon of its griſtlely ſubſtance, which makes the Ring with certaine Ligaments running from one of the inner ſides of the wreſt to the other.

What the *Annulus* or Ring is.

This Ring is placed there as well for the preſervation of the ſinewes, veines & Arteries paſſing under it (leaſt when we leane upon our hand, or wreſt, theſe parts ſhould be hurt by compreſſion) as alſo for the commodity of the Action of the muſcles bending the finger, which in the performance of their action & the cōtracting thēſelves might deform the hand by their paſſing forth of the Cavity of the wreſt. For what attraction ſoever is made by ſtrings, if it be free and not hindered, is according to a ſtreight line.

The bones of the Afterwreſt.

Now follow the bones of the ſecond part of the hand, or of the afterwreſt. Theſe are foure in number, gibbous without, but arched within, or hollow in the middle; for hence is the palme of the hand, or certainly the greater part thereof; their ends next the fingers are ſomewhat remote from each other, that in theſe clifts the Muſcles *Interoſſes* might finde a place and ſeate. But theſe ends have each an Appendix, as you may perceive in the Sceleton of a childe. But you muſt note that by the firſt bone of the wreſt or Afterwreſt, we meane that which is in the foreſide of the hand, that is to ſay, that in the wreſt which lies under the Thumbe, and that in the Afterwreſt, which it ſeated under the forefinger, as theſe which keepe in order the fingers which exceed the reſt in neceſſity and dignity.

The bones of the fingers.

After theſe follow the fifteene bones of the fingers, that is, three in each, which are hollow and fiſtulous full of a thin and liquid marrow, and not of groſſe and thicke as in the arme and thigh. They are outwardly gibbous, but inwardly hollow and flat for the fitter ſeate of the Tendons aſcending alongſt the fingers on the inſide even to the upper joynt. The which that nature might the better ſtrengthen and preſerve, it hath produced from the lips of the inner Cavities of theſe bones a membranous & ſtrong Ligament, which running overtwhart from one ſide to the other doth ſo ſtraitly cloſe the Tendons to their bones, that they cannot goe forth of their places, or incline to either ſide. They are connexed on the outſide, that they might be more fit to hold any thing. But for the firſt bones of the 4 fingers and Thumbe, foure are joyned together with ſo many bones of the afterwreſt by *Synarthroſis*, for the bones of the afterwreſt are moved by no manifeſt motion; the fift is knit to the ſecond ranke of the bones of the wreſt, therefore that bone cannot be attributed to the afterwreſt, as ſome have written, ſeeing it hath manifeſt motion and is knit by *Diarthroſis*, but the bones of the afterwreſt are onely faſtened by *Synarthroſis*. For the ſecond and third ranke of bones of the fingers, they are knit the ſecond to the firſt, and the third to the ſecond by *diarthroſis* and *Arthrodia*, becauſe beſides the manifeſt motion they have, they receive each other by a ſuperficary cavity, as thoſe of the firſt ranke, the bones of the afterwreſt, and thoſe of the ſecond ranke, them of the firſt; thoſe of the third them of the ſecond. And all the bones of the fingers are larger and thicker at their baſis, but ſmaller towards the ends; and they are bound by Ligaments eſpecially proper, which (as we ſaid formerly) deſcend from the firſt to the ſecond; ſo that the laſt bones ſeeing they have not to whom to communicate their nerve, make & produce nailes thereof:

Whence the nailes are generated. Wherefore the nailes are generated by the fibers of the Ligaments, and the excrement of the tendons which are terminated at the bottome of the nailes. The *Oſſa Seſamoidea*, or Seed-bones. Now remaine the *Oſſa Seſamoidea*, or ſeed-bones: theſe are 19. in number in the inner joynts of each of the hands, and as many in each foote, *viz.* two in the firſt joynt of the foure fingers and in the ſecond of the thumbe, and one in each of the reſt. For the inner ſide of the joynts, you may for the moſt part obſerve one in each of them; yet in the ſecond joynt of the thumbe there be two, above the two tendons, which are ſomewhat griſtlely.

Their uſe. They are made for this uſe, that they firme and ſtrengthen the joynts, ſo that the bones of the fingers may not be turned awry, or thruſt forth of their places by ſtrong and violent motions, as it ſometimes happens in the whirle-bone of the knee. They are called *Seſamoidea* from the reſemblance they have to the ſeed of *Seſamum*, which is ſomewhat long and flat.

The Figure of the bones of the Hand. The 1. ſhewes the inſide of the right hand, and the 2. ſhewes the backe ſide of the ſame.

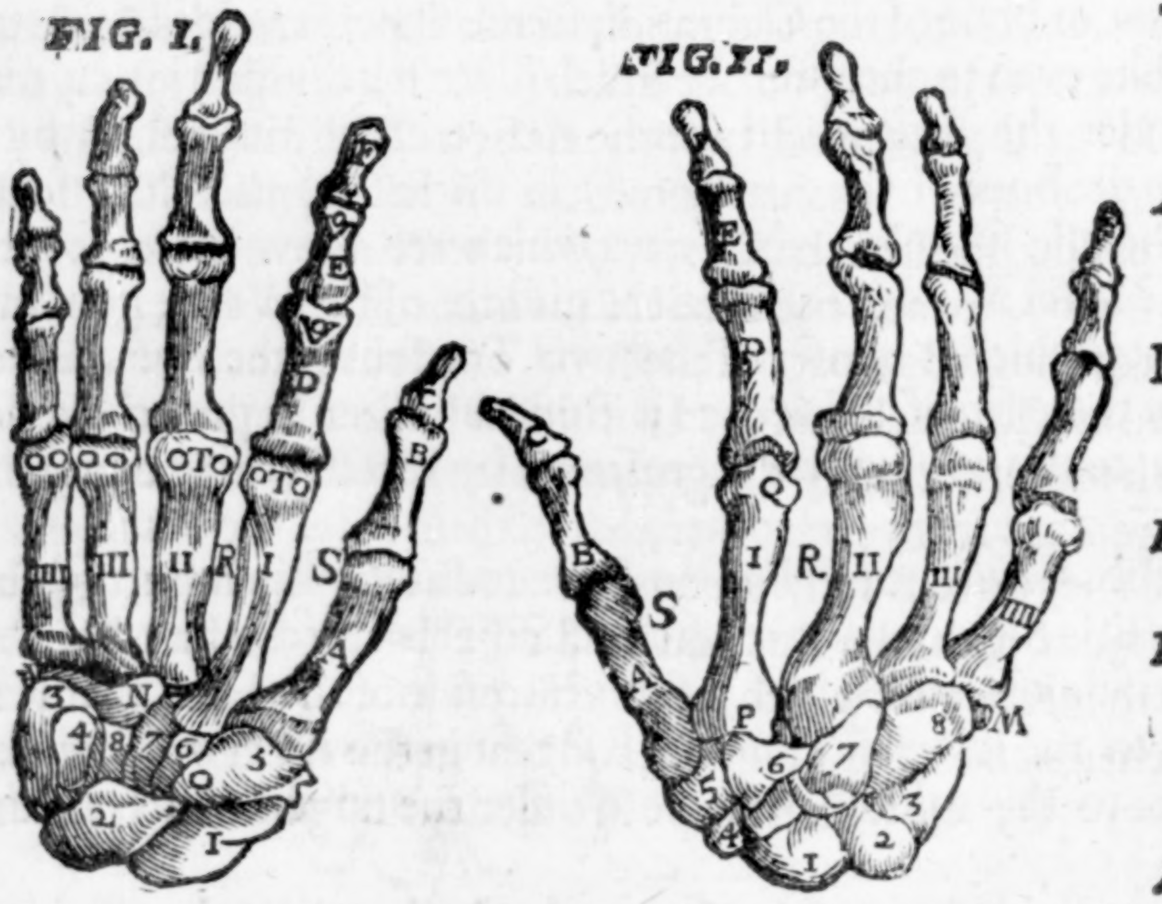


FIG. I.
FIG. II.

The Charact. 1, 2, 3, 4, 5, 6, 7, 8. ſhew the eight bones of the wreſt.

A, 1, 2, The firſt bone of the Afterwreſt lying under the thumbe.

I. II. III. IIII. The 4. other bones of the Afterwreſt annexed to the fingers.

B, *C*. The two bones of the thumbe.

D, *E*, *F*. 1, 2. The 3 bones of the forefinger, which are the ſame in the other fingers.

M, 1, 2. A litle bone ſometimes faſtened outwardly at the joynt of the eight bone of the wreſt.

N, 1. A proceſſe of the eight bone of the wreſt, ſwelling out into the ball of the hand.

O, 1. A proceſſe of the fift bone of the wreſt, from which a Ligament proceeds.

P, 2. An Appendix of the bones of the wreſt, by which they are articulated to the afterwreſt.

Q, 2. Another appendix which with its head entreth into the Cavity of the finger.

R, 1, 2. The ſpace betweene the bones of the afterwreſt.

S, 1, 2. Two litle ſeed-bones ſet on the inſide and outſide of the firſt joynt:

T, 1. Two ſeed-bones in the firſt of the 4 fingers.

V. *V*. 1. One ſeed-bone in the ſecond and third joynt of the fingers.

Chap. XXVIII.

Of the muſcles which ſeated in the Cubite move the Wand and with it the Hand.

The muſcles of the Cubite, NOw muſt we deſcribe the muſcles of the formerly deſcribed parts, that is, thoſe which are ſeated in the Cubit, which are carryed to the inſide of the hand, and thoſe which are called the *Interoſſes*: Now the muſcles of the Cubit are 14, 7 externall, and 7 Internall; two of the ſeven externall doe primarily twine or turne up the Wand, and ſecondarily or by accident turne the Palme of the hand upwards, wherupon they have called them *ſupinatores*, or turners up of the hand; two extend the wreſt, wherupon they are named *Carpitenſores* or the Wreſt-extenders; two the fingers, whence they are ſtiled *Digitumtenſores* or finger-ſtretchers; to cõclude, the ſeventh & laſt is termed *Abductor* or *Obliquator externus*. The firſt of the two *ſupinatores* is called the Long, or Longeſt, becauſe it deſcends from the outſide of the Arme above the proceſſes therof, and is inſerted by a round and ſtrong tendon into the lower Appendix. The other deſcends obliquely from the outward and upper proceſſe of the arme, and is inſerted at the third part of the Wand by a membranous & fleſhy tendon before and on the inſide thereof. The upper of the two Extenders of the Wreſt, deſcending above the wand from the externall and upper proceſſe of the arme is inſerted by two Tendons into the firſt and ſecond bone of the After-wreſt, which ſuſteine the fore and middle fingers.

The *Supinatores*.
The *Carpitenſores*.
The *Digitumtenſores*.
The *Obliquator externus*.
The firſt of the *Supinatores*.
The ſecond.
The upper of the *Carpitenſores*.

The other & lower, deſcending from the ſame place as the former, above the Cubit is inſerted into the fourth bone of the Afterwreſt which beares up the litle finger. Theſe muſcles whileſt they move alone, that is, each with his Antagoniſt, to wit the wreſt-benders, they move obliquely upwards or downwards the whole hand properly ſo called. The firſt and greater of the Extenders of the fingers, or finger-ſtretchers ariſing from the *Olecranum*, or bone of the Cubit, deſcends ſuperficiarilie betweene the two bones of the Cubite even to the wreſt, in which place it is divided into 4 tendons, which paſſing under the Ring ſeated there, end (each diſtinguiſhed by a common ligament above the bone of the Afterwreſt) in the laſt joynts of the foure fingers, adhering neverthelesſe firmely to the bones, which are above theſe joynts.

The lower.
The greater of the *Digitumtenſores*.

The other which is the leſſer ariſing almoſt in the middle of the Wand, goes obliquely to the Thumbe into which it is inſerted by two Tendons; the one thicker which is inſerted into the root therof, and drawes it from the other fingers; the other ſlenderer continued even to the upper joynt therof, and by its action extending the Thumbe.

The leſſer.

The ſeventh which is the *Abductor* or *Obliquator*, is ſeated at the hinde part of the hand, that is, towards the litle finger; we have often found this divided in two, yea verily we have found it trifide, or divided into 3. this yeare in three or 4 dead bodyes. one portion therof went to the lower ſide of the Ring-finger with two Tendons, the other in like manner to the middle and fore-fingers, and the third to the Thumbe.

The *Obliquator*, or *Abductor externus*.

And for all that it is thus divided, yet ſome have taken and accounted it for one Muſcle, becauſe it hath one originall and action, which is to draw the fingers backwards; ſome have added to this the extender of the Thumbe by reaſon of their common originall; and thus of 4. muſcles they have made one divided into 7. tendons, diſtributed, as is formerly ſhewed. But when the *Obliquator* of the Ring-finger is wanting, as it often happens, the extender of the finger ſupplyes that defect by certaine productions of tendinous ſtrings. But ſome alſo have written, that this muſcle which we ſaid hath 7. tendons, is onely a production of the deepe fore muſcle, which ſhould be ſent through the ſpace betweene the bones of the Cubit; yet I had rather make it a muſcle of it ſelfe, by reaſon of its ſtrait adheſion with the bones of the Arme and Wand. And let thus much ſuffice for the externall muſcles of the Cubit, which you may comprehend in the number of ſeaven, as we have done; or in ſixe, if you take away one of the 4. or in nine, if you had rather reſolve it into 4. with *Galen*; or in eight, if you divide this muſcle onely into three. For in very deed the *Abductor* or *Obliquator* of the Ring-finger is not often found in men.

Now muſt wee come to the inner muſcles of the Cubit, the firſt of which compaſſes the skin of the palme of the hand, whence it is called the *Palmaris*. The ſecond and third joyned by the communion of their action turne downe or prone the Wand, and conſequently the hand, ſo that the palme lookes towards the feet, whereupon they are called *Pronatores*.

The muſcles of the inner part of the Cubit.

The 4. and 5. joyned alſo in affinity of action bend the Wreſt, wherefore they are named *Carpiflexores*, Wreſt benders. The ſixth and ſeaventh are appointed to bend the firſt, ſecond, and third joynts of the fingers, wherefore they are tearmed

The *Palmaris*

The *Pronatores.*

The *Carpiflexores.*

Digitumflexores, Fingerbenders. For their originall; the ***Palmaris*** the leaſt & uppermoſt of them all, deſcends fleſhy from the hinde proceſſe of the inner arme, & a litle after ending in a long and ſlender Tendon, it is ſpent in the skin of the Palme of the hand even to the roots of the fingers. For it was neceſſary that this skin ſhould ſtraitly cohere with the ſubjacent parts, not onely for the fitter taking or comprehenſion of any thing, leſt that skin in holding ſhould be wrinckled & drawne away from the palme and fingers, and ſo be an impediment; but beſides that the hand might have a more exact ſenſe to diſtinguiſh of hot, cold, moiſt, dry, ſmoth, æquall, rough, ſoft, hard, great, litle, and ſuch other qualityes. Then follow the two *Pronatores*, of which one called the round, comes obliquely from the inner ſide of the hinde proceſſe of the arme almoſt to the middle of the Wand, to which it adheres by a mēbranous & fleſhly tendon, even to the place appointed for inſertion. The other ſquare three or foure fingers broad, yet ſomwhat ſlender, ſeated within under all the muſckes which deſcend on the inſide to the wreſt or fingers, upon the ends of the bones of the Cubit, aſcends tranſverſe from below the Ell, unto the top of the VVande where it ends in a membranous tendon. Both the *Carpiflexores*, or VVreſt-benders ariſe from the hinde, but inner proceſſe, and deſcende obliquely (the one more, or leſſe than the other) the one alongſt the Ell, but the other alongſt the wande; and that which deſcends alongſt the Ell, is inſerted into the eight bone of the wreſt, which we ſaid made part of the Ring; the other which followes the VVande is inſerted with his greater part into the bone of the wreſt, and with the reſt into the firſt bone of the After-wreſt which ſuſteines the fore-finger.

The *Digitum flexores.*

The *Sublimis Digitumflexor.*

Now remaine the *Digitumflexores*, or Fingerbenders, which becauſe they lye upon one another, the upper is called the *ſublimis*, but the lower the *Profundus*. The *Sublimis* or upper, ariſing from the inner part of the hinde proceſſe of the arme, and from the upper parts of the Ell and VVand deſcends betweene theſe two bones of the Cubit even to the wreſt and Ring; divided into 4. tendons it is inſerted into the ſecond dearticulation of the foure fingers, which it bends by the force of this his proper inſertion; as alſo the firſt, as well by the power of the common ligament, as by certaine fibers cōming from it, which it ſends thither by the way in its paſſage. But theſe 4 tendons nere unto this their inſertion are divided into two, ſo to give paſſage and ad ſtrength to the tendons of the Deep muſcles deſcending into the third and laſt joint of the fingers.

The *profundus Digitumflexor.*

But this ſame *Profundus* or Deepe muſcle ariſing from the upper and inner parts of the Ell and Wand, deſcends betweene theſe two bones under the *Sublimis*, alſo undivided even to the wreſt, where it is divided into 5. Tendons which it brings forth under the common Ligament, and the diviſions of the Tendons of the *Sublimis* even to the laſt joynt of the fingers, which they bend, by this their proper inſertion, as alſo the bones of the firſt and ſecond joynts of the fingers by the meanes of the common Ligament and fibrous productions which they beſtow upon them by the way. Beſides theſe forementioned there is ſeene alſo a certaine membranous Ligament which engirts the tendons in the compaſſe of the fingers.

Chap. XXIX.

Of the Muſcles of the inſide of the hand.

The number of the muſcles of the inſide of the hand.

The *Thenar.*

THe muſcles of the inſide of the hand are 7 in number; the firſt is called *Thenar* becauſe it makes the greater part of the Palme; the ſecond from the ſite is called the *Hypothenar*; the third the externall *Abductor* of the Thumbe. The 4. other are called by reaſon of their figure the *Lumbrici* or wormy muſcles, or the *Adductores*, or Drawers of the foure fingers to the thumbe. Now the firſt called *Thenar*, thicker than the reſt, ariſes from all the bones of the Afterwreſt, taking its beginning from that bone which beares up the Ring finger, whence aſcending alongſt the Vitall line even to the end therof at the firſt bone of the After-wreſt ſuſteining the fore finger, & it is at length inſerted into the laſt joynt of the Thumbe by the longſt fibers, but by the middle and ſhorteſt fibers almoſt into all the inner part of the firſt bones of two joynts, and by reaſon of this, the thumbe is drawne to the other fingers, and from them againe by his lower originall.

Some devide this muſcle into three, by reaſon of his diverſe actions, making the firſt to ariſe from the roote of the bone of the afterwreſt which beares up the ring finger; but the other from that middle bone of the afterwreſt which ſuſtaines the middle finger; but of the third, from the upper end of that bone which underprops the fore finger, and that the inſertion of them all, is, as we formerly mentioned. But the former opinion likes me better, both for ſhunning confuſion, and abbreviating the doctrine of the number of muſcles.

The *Hypothenar*.

The *Hypothenar* ariſes from the fourth bone of the afterwreſt, and that bone of the wreſt which ſuſtaines it, and then with its longeſt fibers, it is inſerted into the ſecond joynt of the ring-finger, and by the ſhorteſt into the firſt, through which occaſion, as alſo in reſpect of its twofold action, ſome have devided it into two, that the one of them might leade it from the reſt, and the other might draw it to the thumbe.

The externall *Abductor* of the thumbe.

The *Lumbrici*.

The third the externall *Abductor* of the thumbe, deſcends from the firſt bone of the afterwreſt, into the firſt and ſecond joynt of the thumbe; wherefore ſome have devided it into two. The *Lumbrici*, or foure externall *Abductores* of the foure fingers ariſe from a membrane, inveſting and binding together the tendons of the *Digitum flexores*, or fingerbenders, and at length on the ſides towards the thumbe even by a ſmall tendon, running even to the ſecond joynt of the foure fingers.

The *Interoſſes*.

Now the *Interoſſes* of the afterwreſt, remaine to be ſpoken of; theſe are ſixe, two in each of the ſpaces betweene the fingers, one Internall, the other Externall, of which the Internall deſcending with oblique fibers from the ſide of the firſt bone of the afterwreſt, goes alſo into the ſides of the fingers, that ſo it may the more cloſely binde together the bones of the afterwreſt, whoſe action is manifeſted when wee thruſt our fingers into a ſtrait glove, or when we bend our hand. Some thinke that it helpes alſo the drawing of the fingers towards the thumbe. The Externall aſcends alſo by oblique fibers from the ſides of the ſecond bone of the afterwreſt, to the firſt joynts of the fingers, interſecting the internall which we now deſcribed after the manner of the letter X, for to extend the palme of the hand, and helpe the drawing away of the fingers from the thumbe.

The number of the muſcles of the whole taken in generall.

Here concluding the deſcription of the muſcles of the whole hand taken in generall, you ſhall note that they are 39. in number, that is, eight appointed to move the arme; foure ſet to move the cubit in generall; ſeven ſeated on the outſide of the cubit, aud as many on the inſide in the ſame cubite, moving the wand, and with it the hand; ſeven on the inſide of the hand: and laſtly, the ſixe *Interoſſes*. Some encreaſe this number, ſaying, there are nine on the externall part of the cubite, and eleven on the inſide of the hand.

Chap. XXX.

A Deſcription of the Legge taken in generall.

AFter the hand followes the deſcription of the legge. Wherefore to take away all doubtfulneſſe, we will firſt define the legge; then devide it into the parts more and leſſe compound; thirdly we will proſecute all things common to all theſe parts; fourthly, thoſe which are peculiar to each, and then, God willing, we will give an end to our Anatomy.

The diverſe acception of the legge.

Now this word *Crus*, or Legge, is uſed two manner of wayes, that is, either generally and ſpecially, and ſpecially againe after two ſorts, that is, either abſolutely and ſimply ſo, or with an adjunct. It is ſimply taken for all that which is betweene the knee and the foote. But with an adjunct for the greater bone thereof. But the legge taken in generall, is the inſtrument of going, containing all whatſoever is from the hipps, to the very ends of the toes. It is devided into three great parts, that is to

ſay,

The thigh. The legge or ſhanke. The foote.

ſay, the Thigh, the Legge, or Shanke, and the Foote. By the thigh we meane that which lies betweene the hippe and the knee. By the legge, properly ſo called, or ſhanke, that which is contained betweene the knee and the foote. By the foote all from thence to the ends of the toes.

The diviſion of the foote. The Inſtep.

The top of the foote. The toes.

Againe, they devide the foote into three parts, that is, the *Tarſus* or Inſtep, the *Pedion* or top of the foote, and the *Digiti pedum*, or toes. We underſtand by the inſtep, that which is contained in the firſt ſeven bones, which anſwers in proportion to the wreſt of the hand. By the top of the foot, that which is comprehended in the five following bones, which is anſwerable to the afterwreſt That which remaines, we call the toes. But becauſe all theſe parts have other common and proper parts, we will onely follow the diſtribution of the veines, arteries, and nerves; ſeeing we have ſufficiently explained the reſt, when we deſcribed the containing parts of the body in generall.

Chap. XXXI.

A Deſcription of the Crurall veine.

The beginning of the Crurall veine. The two branches thereof.

THe Crurall veine begins then, when the hollow veine paſſing forth of the *Peritonæum*, and ſtretched to the hanch bone, and the ſides of the *Pubis* in the groine, is firſt divided into two large branches; the one of which deſcends on the inſide alongſt the bones of the whole legge, together with the artery and nerve; the other runnes downe outwardly and ſuperficially alongſt the legge, betweene the fat lying under the ſkinne, and the muſcles even to the foote, and is ſpent in the ſkinne thereof. This becauſe it is alwayes apparent and manifeſt, is called properly by the Greekes *Sapheia*, but commonly *Saphæna*.

By what veines, the matter cauſing thoſe tumors called *Bubones* flows downe.

This veine by the way preſently at its originall is devided into two branches, the one internall, the other externall; of which the internall is ſpent upon the *Bubones*, and other glandules of that place and the ſkinne, and by this branch come the defluxions called *Bubones*; the other branch is waiſted in the fore and utter ſkinne of the upper part of the thigh; then a little lower, that is, about the bredth of three or foure fingers, it is gathered againe into one branch made of many little ones, which is ſpent in the fore and hinde ſkinne of this thigh. Thirdly, a little below the middle of the thigh it is againe devided into two other branches, of which the one goes into the ſkinne on the fore ſide, and the other on the hinde ſide. Fourthly, it is diſtributed by two other ſmall ſpriggs into the ſkinne, on the fore and hinde part of the knee; which oftentimes are not found, eſpecially when the *Poplitea* or ham veine, is ſomewhat larger than ordinary. Fiftly, a little below the knee, it produces two other branches, lying upon each other in their paſſage out into the fore and hinde ſkinne of that place. You muſt note, that branch which runnes into the ſkinne of the hinde part, is carried by a certaine other ſprigge, which it produces, into a branch of the *Poplitea* paſſing forth of the two twin muſcles. Sixthly, in the bigger part of the calfe of the legge, it is divided into two other branches, which in like manner are diſtributed into the ſkinne, as well in the fore ſide as the backe ſide of the legge.

Where and in what diſeaſes, the *Sapheia* muſt be opened.

At length after many other diviſions, which for brevitie ſake, I omit, when it arrives at the fore and inner ſide of the ankle (where it is commonly opened in the diſeaſes of the parts below the midriffe which require bloud-letting) it is parted into two other branches, the leſſer of which deſcends to the heele; the other in many ſprigs is ſpent upon the ſkinne of all the upper and lower part of the foote and toes.

To what places, and by how manifold deviſions the internall branch of the crurall veine goes. *Iſchiadica vena.*

The ſecond branch of this Crurall veine, which wee ſaid deſcends within together with the artery and nerve, even into the foote, is devided; firſt peircing ſomewhat deepe in, it produces foure divarications; one internall deſcending below the originall of the *Sapheia* into the muſcle called *Obturator externus*, and into certaine other externall muſcles. The three other runne outwardly, the firſt towards the huckle bone, by which the *Iſchias* is made, the two other into the fore muſcles of the thigh, neither are theſe ſprigs far remote from one another. Secondly, all that branch is devided into two other branches, the one above, the other below, an artery alwayes accompanying it; the lower of which is ſpent upon many of the hinder muſcles of the thigh, ending nigh the ham. The upper, beſides, that it beſtowes many branches uppon the fore and inner muſcles of the thigh, deſcending to the ham, it produces the *Poplitea* or ham veine, made ſometimes of two branches, the one proceeding from above, and the other from below. This *Poplitea* deſcending by the bending of the ham, is ſpent one while upon the skinne of the calfe of the legge, another while upon the knee, otherwhiles encreaſed with branches of the *Sapheia*, it goes on the outſide of the anckle to the skinne, on the upper ſide of the foote, and ſometimes on the lower.

Muſcula Vena.

Poplitea Vena.

Thirdly, a little below the originall of the ham veine, and under the bending of the knee, it brings forth the *Suralis*, which is beſtowed upon the muſcle of the *Sura*, or calfe of the legge, and upon the skinne of the inner ſide thereof, and of the foote continued ſometimes even to the inner part of the great toe.

Suralis vena.

Fourthly, under the head of the hinder appendix of the bones of the legge, it produces betweene theſe two bones, another veine, which nouriſhing the fore muſcle of the legge, is conſumed upon the foote.

Fiftly, and laſtly, it brings forth the *Iſchiadica maior* or greater *Iſchias*, which is devided into two branches of an unequall bigneſſe; the larger whereof, from his originall deſcending alongſt the inner part of the legge bone, inſinuates it ſelfe under the muſcles of the calfe, betweene this and the heele, into the ſole of the foote, upon which it is waſted, devided into ten ſmall ſprigs, two for each toe; the other being the leſſer deſcending alongſt the *Perone*, or ſhin-bone, is conſumed betweene it and the heele, yet ſometimes it is produced, not onely even to the muſcle the *Abductor* of the toes, but alſo by five ſurcles, even to the fourth toe, and the ſides of the middle toe.

Iſchiadica maior.

CHAP. XXXII.

The Diſtribution of the Crurall Artery.

THe crurall artery ariſing from the ſame place whence the crurall veine proceeded, and deſcending with the internall crurall veine is diſtributed as followeth.

First, into the muſcle of the thigh, which ſpreading it ſelfe through the muſcles thereof meets with the utmoſt *hypogaſtrica*, deſcending with the veine through the common hole of the huckle and ſhare bone, and is joyned with it.

Arteria muſcula.

Secondly, when it arrives at the ham, betweene the *Condylos* or proceſſes of the legge, it ſends two branches into the knee.

Thirdly, a little after it produces another branch, which it ſends to the exteriour muſcles of the legge, and when it arrives at the middle of the legge, it is devided into two branches, betweene the twin muſcles and *Solæus*, the one internall, the other externall; the internall, ſome ſurcles communicated by the way to the parts by which it paſſes, but ſpecially to the joynt of the anckle, ſtretches it ſelfe over the ſole of the foote, betweene the lower extremity thereof and heele, whither, when it arrives it is divaricated into five ſurcles, of which it beſtowes two on the great toe, two on the next, and one on the middle toe. The externall deſcending in like manner to the ſole of the foote, betweene the *fibula* and the heele, beſides other ſprigs, which it may ſpread by the way, it produces one without on the joynt of the anckle, another in the muſcle, the *Abductor* of the toes, to the wreſt and backe of the foote. But the remainder is devided into five portions, of which two are ſent to the fourth, and two to the little toe, and one to the middle.

Chap. XXXIII.

Of the Nerves of the Loynes, Holy-bone and Thigh.

The five conjugations of the nerves of the loines.

THere ariſe five conjugations of nerves from the loines, devided into externall & internal branches; the externall are diſſeminated into the *Rachitæ* or chin muſcles, the muſcles *Semiſpinatus* and *Sacer* and the skinne lying over them. The internall are ſent into the oblique aſcendent and tranſverſe muſcle of the lower belly, into the *Peritonæum*, into the loine and cheſt muſcles ariſing there, but after a different manner; for ſome are abſolutely carried thither, as the nerves of the firſt conjugation of the loines, and oftentimes alſo of the ſecond, but that ſometimes they ſend a ſmall ſprigge to the teſticles, when the Coſtall have ſent none thither; but ſome lower are partly diſtributed there, and partly ſent ſome other way; for the greater portions firſt united amongſt themſelves, then preſently with the portions of theſe of the holy-bone, goe into the thigh, as we ſhall ſhew in the diſtribution of the nerves of the holy-bone.

Where the teſticles have their nerves.

The conjugations of the nerves proceeding through the holybone.

Now from the holy bone, proceede ſixe conjugations of nerves, reckoning that for the firſt which proceeds from the laſt *Vertebra* of the loines, and firſt of the holy-bone; and that the ſixte which proceeds from the loweſt part of the holy-bone, and the firſt of the rumpe; theſe conjugations of nerves are devided into externall and internall branches.

An Anatomicall axiome.

The leſſer externall paſſing forth by the externall and hinder holes of the holy-bone, are diſtributed into the parts properly belonging thereto, to wit, the muſcles and skinne thereof; for every nerve by the law of nature firſt and alwayes yeelds to the neighbouring parts, that which is needefull, then preſently to others as much as it can.

Wherefore if thou wouldſt know whence each part hath his veſſels at the next hand, that is, the veines, arteries and nerves, thou muſt remember the ſite of each part and the courſe of the veſſels, and to conſider this, that the veines and arteries as ſpeedily and conveniently as they can, inſinuate themſelves into the parts, ſometimes at the head or beginning, ſomewhiles by the middle, or extremes thereof, as there is occaſion.

But a nerve principally enters a muſcle at the head thereof, or at leaſt not farre from thence, but never by the taile, whereby it may eaſily be underſtood by what branch of each veine, artery, and nerve, each part may have nouriſhment, lift, and ſenſe. The other internall branches of the foreſaid conjugations goe, eſpecially the foure uppermoſt united from their originall with the three lowermoſt of the loines, into all the legge, as you ſhall preſently heare. But the two lower are conſumed upon the muſcles called *Levateres Ani*, the *Sphincter* muſcle of the ſame place; beſides, upon the muſcles of the yard, and necke of the bladder in men, but in women upon the necke of the wombe and bladder.

For theſe parts admit another in their bottome from the coſtall nerve, being of the ſixth conjugation of the braine; theſe thus conſidered, let us come to the nerves of the thigh, which (as we ſaid) from their firſt original, as it were copacted and compoſed of the greater portion of the three inner and lower branches of the loines, and the foure upper of the holy-bone, are devided in the thigh into foure branches, of which the firſt and higher deſcending from above the *Peritonæum*, to the little *Trochanter*, is waſted upon the inward and ſuperficiary muſcles of the thigh, and the skin which covers them a little above the thigh.

The ſecond, deſcending with the crurall veine and artery by the groine, is devided into two branches like as the veine, the one internall, the other external, of which the internall deſcending with the veine and artery is ſent into the inner and deepe muſcles of the thigh ending above the knee. But the externall deſcending ſuperficially with the *Saphæna*, even into the foote, gives branches by the way to the skinne which covers it.

The third ſeated under theſe former, paſſing by the hole common to the ſhare and hanch-bone, ſends certaine branches to the groines, to the muſcles called *Obturatores*, to the *Tricipites*, and ſometimes to the muſcles of the yard, and it ends at the midſt of the thigh.

The fourth, which is the thickeſt, ſolideſt, and hardeſt of all the nerves in the body, deſcending wholely from the productions of the holy-bone, and deſcending outwardly betweene the lower part of the ſame bone, and the *Os Ilium*, or Hanch-bone to the thigh, beſtowes certaine ſprigges to the hinde muſcles thereof proceeding from the proturberation of the *Iſchium* or huckle-bone, and in like ſort it gives otherſome to the skinne of the buttocks, and alſo to the skinne covering the forementioned muſcles.

A little after, it is parted into two branches deſcending undevided even to the bending of the knee, they both are communicated by diverſe ſurcles of the muſcles of the legge; yet ſo as the leſſer produces another branch from the reſt of the portion thereof deſcending on the fore part of the legge, alongſt the ſhin-bone unto the top of the foote, where it is devided into tenne ſurcles ſcarſe apparent to the ſight, two running to each of the toes. The other greater deſcending in like manner in the remainder of its portion by the hinde part of the legge into the ſole of the foote, caſts its ſelfe with the veines and arteries betweene the heele and legge bone; where firſt devided into two branches, each of which preſently parted into five, ſend two ſprigs to the ſides of the toes. And theſe are the moſt notable and neceſſary diſtributions of the veſſels and nerves; we purpoſely omit others which are infinite, and of which the knowledge is impertinent.

CHAP. XXXIIII.

Of the proper parts of the Thigh.

HAving explaned the common parts of the legge in generall; now wee muſt come to the proper, beginning at the Thigh. The proper parts of the Thigh, are muſcles, bones, and ligaments But becauſe the demonſtration of the muſcles is ſomewhat difficult, if we bee ignorant of the deſcription of the bones from whence they ariſe, and into which they are inſerted; therefore we judge it worth our labour, firſt to ſhew the bones, and the dearticulation of theſe of the Thigh; beginning with theſe bones which are knit with the upper part of the holy-bone. And they are two in number, on each ſide one, commonly called the *Oſſa Ilium*; each of theſe is compoſed of three bones, of which one is the upper, another the lower and anteriour, and the third the middle, and after a manner the poſteriour. The upper by a particular name is called the *Os Ilium*, the hanch bone, and it is the largeſt and biggeſt, having a griſtlely appendix in the compaſſe thereof, even to the connexion it hath with the other neighbouring bones, whoſe upper part we terme the right line thereof; but the *baſis*, which is adjoyned to it by *Simphyſis*, we call the lippe or brow therof, becauſe it ſtands both ſomewhat out and in, after the manner of the brow. But that which lies betweene the *baſis* and ſtraight line we name the ribbe; this ſame upper bone hath two hollow ſuperficies, the one internall, the other externall. The connexion thereof by *Symphyſis*, is twofold, the one with the upper part of the holy-bone; the other with that bone wee called the middle, and after ſome ſort the poſteriour; which taking its beginning from the narrower part of the *Os Ilium*, makes that cavity in which the head of the thigh is received; this cavity the Greekes call *Cotyle*, the Latines *Acetabulum*, and it is ended by the ſide of the hole common to it, and the ſhare-bone; this middle, and in ſome ſort poſteriour bone is called properly and particularly the *Os Iſchij*, or huckle-bone, and containes nothing elſe but the forementioned cavitie, but that on the hinde and lower part thereof, it brings forth a proceſſe, which adjoynes it ſelfe to the ſhare bone at the lower part of the common hole, in which place it appeares very rough and unequall, and it is called the tuberoſitie of the huckle-bone, at whoſe extremity alſo it brings forth a little head ſomewhat reſembling the proceſſe

Of how many bones the *Oſſa Ilium* conſiſt.
What the *Os Ilium* ſtrictly taken is.

What the line, lippe, brow, and rib, of the *Os Ilium* are.

The *Os Iſchium*, or huckle-bone.

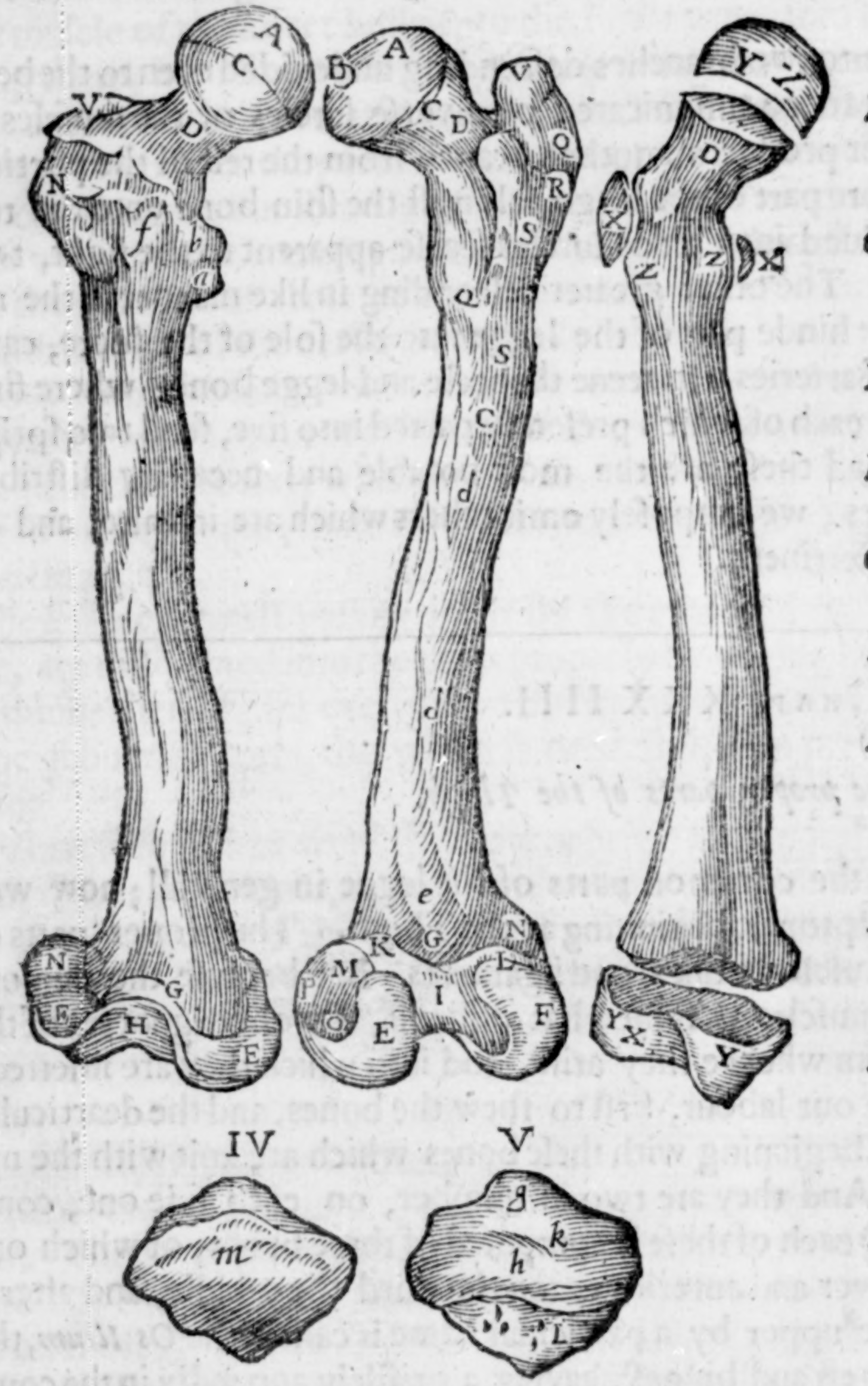
of

The *Os pubis*, or ſhare-bone.

of the lower jaw called *Corone*. The third bone named *Os pubis* or the ſhare-bone, ſtretches it ſelfe even to the higheſt part of the *pecten*, where meeting with the like bone of the other ſide, it is united to it by *Symphyſis*, after which manner alſo, all theſe three bones are united ; it is reported, that this bone opens in women in their travell, yet hitherto I can finde no certainety thereof.

The Figure of the Thigh-bone.

FIG. I 2 III.



IV V

A 1, 2. The head of the thigh going into the cup of the hip-bone.

B, 2, A ſinus in the head of the thigh, into which is inſerted a round Ligament.

C 1, 2, The conjunction of the appendix of the thigh with the bone it ſelfe.

D 1, 2, 3, the necke of the thigh.

E, *F*, the two lower heads of the thigh.

G, 1, 2, The conjunction of the lower appendix.

H, 1, 1 2, A ſinus betwixt the two heads of the thigh.

K 2, A part of the lower head of the thigh, from whence the firſt muſcle of the foote doth proceede.

L 2, Another part from whence the ſecond and firſt muſcles ariſe.

M 2, Another part to which the Tendon of the fift muſcle of the thigh is infixed.

N 1, 2, A ſinus of the outward ſide of the head for the fourth muſcle of the legge.

O 2, A ſinus of the inſide through which the tendons doe paſſe. *P* 2, A protuberation at which the ſaid tendons are reflected. *Q* 2. the upper proceſſe of the thigh, and betwixt *Q* and *D* is the ſinus. *R* 1, 2, the union of the proceſſe with the thigh. *S S* 2, a rough line from the impreſſion of the externall proceſſes. *T* 1, the anterior impreſſion of the internall proceſſes. β, betwixt *T* and *V* another impreſſion higher than the former. *V* 1, 2, the fourth impreſſion in the toppe of the proceſſe. *X* 3. Foure *X*, ſhew the foure *appendices* of the thigh. *Y* 3, Three *Y*, ſhew the three heads of the thigh. *Z Z* 3, Two proceſſes of the thigh. *a* 1, the interior proceſſe of the thigh. *b* 1, the conjunction of the proceſſe with the thigh. *c c* 2, a line deſcending obliquely from the inner proceſſe. *d d* 2, a line running through the length of the thigh. *e* 2, the largeneſſe of the thigh in this part. *f* 1, a roughneſſe from which the eight muſcle iſſueth. *g*, *h* 5, a knub of the Whirle-bone going into the ſinus marked with *I*, which is betwixt the heads of the thigh. *i* 5, a ſinus fitted for the inner head of the thigh. *k* 5, a ſinus agreeing with the externall head of the thigh. *l* 5, the lower aſperity or roughneſſe. *m* 4, the foreſide of the pattell or whirle-bone rough and unequall.

You may perceive a manifeſt ſeparation of theſe three bones in the *Sceleton* of a child; for in thoſe who are of more yeares, the griſtles which runne betweene theſe connexions turne into bones.

The deſcrip of the thigh bone.

Now followes the thigh-bone, the biggeſt of all the bones of the body; it is round, and ſo bended, that it is gibbous on the exteriour and fore part thereof, that ſo it might be the ſafer from externall injuries; but on the hinde and inner part, it is hollow or ſimous, like to the backe of an Aſſe, whereby the muſcles might have a more commodious originall and inſertion.

That ſimous part a little below the midſt thereof, is devided into two lines, the one whereof goes to the internall tuberoſitie, the other to the externall of the lower appendix of the ſame thigh. Theſe are chiefely to be obſerved, becauſe the oblique fibers of the vaſte muſcles thence take their originall.

The two appendices of the thigh-bone.

Beſides, this bone hath two appendices in the ends thereof, as eaſily appeares in a childs thigh; the upper appendix, makes the round head of the thigh it ſelfe, which (as every other appendix) ſeated upon a long necke, is received in the cavitie of the hanch-bone by *Enarthroſis*; it is ſtaied and faſtened there by two ſorts of ligaments, of which the one is common, proceeding from the muſcles, which deſcend from above, about the necke thereof; the other is proper, which is twofold, that is, one membranous and broad, proceeding from the whole cavity of the orbe, or cuppe, deſcending about all the head of the thigh, above the necke thereof; the other thicke and round, deſcending from the ſecond cavity of the *Cotyle* it ſelfe, which is extended, even to the common hole at the top of the head thereof.

The two proceſſes of the thigh-bone make the two *Trochanters*.

Beſides, under this head, that bone hath two proceſſes, the one great and thicke, the other little and ſhort.

The greater ſeated in the hinde part, is called the great *Trochanter*; the leſſer ſituate in the inner part, is named the little *Trochanter*.

But you muſt note, that the great *Trochanter*, on the higher and hinde part thereof, which lookes towards the head of this bone, makes a certaine ſmall *ſinus* or boſome, into which the twin muſcles and others, whereof we ſhall hereafter ſpeake, are implanted; we muſt alſo conſider the multitude of holes encompaſſing this necke, betweene the head and the two *Trochanters*, which yeeld a paſſage to the veſſels, that is, the veines, arteries, and nerves, into the marrow of the bone it ſelfe, whence the marrow it ſelfe becomes partaker of ſenſe, eſpecially on that part which is covered with a coate, and the bone lives and is nouriſhed.

Whence the marrow becomes partaker of ſenſe.

The other Appendix of the thigh, that is, the lower, is the greateſt and thickeſt, riſing, as it were with two heads, which are devided by two cavities, the one ſuperficiarie and on the fore ſide, whereby it receives the whirle-bone of the knee; the other deepe, and on the backe part, by which it receives the griſtlely and as it were bony ligaments, proceeding from the eminencie which is ſeene betweene the two cavities of the upper appendix of the bone of the legge, which *Hippocrates, lib. de fracturis*, calls in his tongue *Diaphyſis*.

CHAP. XXXV.

Of the muſcles moving the thigh.

Their number.

THe muſcles of the thigh are juſt foureteene in number, that is, two bend it, whereupon they are called the *Flexores*, or benders; three extend it, whereupon they are called *Tenſores*, extenders; three move it inwards, driving the knee outwards, and drawing the heele inwards, as when wee croſſe our legges; yet ſome make theſe three one, and call it the *Triceps*, or threeheaded muſcle. Sixe ſpread it abroad, and dilate it, as happens in the act of venery.

Foure of theſe are called ***Gemini*** or Twins, by reaſon of the ſimilitude of their thickneſſe, originall inſerrion and action; the two other are called *Obturatores*, becauſe they ſtop the hole which is common to the ſhare and backe-bones.

The two flexores.

Now one of the two *Flexores*, being round, deſcends on the inſide with fibers of an unequall length from all the tranſverſe proceſſes of the loines, above the hinde commiſſure of the hanch and ſhare-bones, and is inſerted into the little *Trochanter*; the other broader and larger from the originall paſſes forth of the whole lippe, and inner brow of the hanch-bone, and filling the inner cavity thereof, is inſerted above the fore part of the head of the thigh, into the little *Trochanter* by a thicke tendon, which it with the fellow muſcle lately deſcribed, produces, even from the fleſhy part thereof, wherefore you neede to take no great paines in drawing, or plucking them away.

The three Tenſores.

The three *Tenſores* or extenders, make the buttocks, of which the firſt being the thicker, larger, and externall, ariſing from the rumpe, the holy-bone, and more than halfe of the exteriour and hinder lippe of the hanch-bone, is inſerted by oblique fibers, ſome foure fingers breadth from the great *Trochanter* at the right line, which we ſaid, reſembled an Aſſes backe.

The ſecond, which is the middle in bigneſſe and ſite, deſcends from the reſt of the lippe, and from the fore and outward ribbe of the hanch-bone, and above the midſt of the bone, is inſerted into the upper part of the great *Trochanter* by a triangular inſertion above the upper and exteriour part thereof.

The third being leſſer, ſhorter and thinner, lying hidde under theſe former, proceeds from the middle of the externall ſurface of the hanch-bone, and then is inſerted into the greater part of the right line of the great *Trochanter*.

Theſe three muſcles have a great andlarge originall, but a narrow inſertion, as it were by oblique fibers.

Three *Intromoventes*.

Then follow thoſe three muſcles which move the thighes inwards, ſtraiten and croſſe then, ſo that the knee ſtands forwards or outwards, but the heele is drawne inwards, as you may underſtand by their inſertion, although ſome thinke otherwiſe. But theſe three muſcles by their originall, partly fleſhy, and partly membranous, ariſe from the upper and fore part of the circumference of the ſhare-bone, and thence are inſerted into the hinde line of the huckle-bone, ſome higher than otherſome; for the leſſer and ſhorter ſtayes at the roots of the little *Trochanter*, the middle deſcends a little deeper; the 3. with the longeſt of his fibers, deſcends even to the midſt of the line.

This if it be ſo, that is, theſe muſcles proceeding from the fore and upper part, to be inſerted into the hinder line of the huckle-bone, whileſt they alone performe their action, and draw the thighs together, they will turne them outwards, juſt ſo as when we put them acroſſe, but they will not draw one heele to another, and put the heele outwards, for ſuch like motion is performed by the inner Vaſte muſcle of the thigh, moving the legge. Now follow the ſixe which move the buttocks.

The movers of the buttocks.

The firſt, and higher of the *Quadrigemini*, or the foure twin muſcles, paſſes forth of the commiſſure of the holy-bone, with the bone of the rumpe, or rather from the loweſt extreme of the holy-bone, and thence it is inſerted into the cavity of the great *Trochanter* by a tendon of a ſufficient largeneſſe.

The ſecond proceeding from the hollow part or fiſſure, which is betweene the extremity of the huckle-bone, and the tuberoſitie, or ſwelling out of the ſame, is inſerted in like manner into the cavity of the great *Trochanter*.

The third, aſcends from the inner part of the ſwelling out of the huckle-bone, a little above, betweene the two *Trochanters*, into the cavity of the greater of them.

The fourth, and laſt, the loweſt and broadeſt of them all proceeds from all the exteriour protuberancie of the huckle-bone, and thence is inſerted into the great *Trochanter*, and theſe foure muſcles lie hid under the thicke and more eminent part of the buttocks; wherefore that you may the better ſhew them, they muſt be turned up towards their originall.

The two *Obturatores*.

The two ***Obturatores*** remaine to be ſpoken of, that is, the internall and externall, both which ariſe from the circuite and circumference of the hole which they ſtoppe, which as wee ſaid is common to the ſhare and huckle-bone, but the internall aſcends to the exteriour roote of the great *Trochanter* by the middle fiſſure betweene the upper part of the protuberancy of the hucklebone, and the ſpine which ſtands up in the hinder baſis of the hanch-bone.

But the externall proceedes from the exteriour cavity, and the middle ſpace betweene the tuberoſity of the huckle-bone and cavity thereof, and is inſerted in the lower part into the cavity of the great *Trochanter*, together with the *Quadrigemini.*

If you would plainely ſee the exteriour *Obturator*, you muſt either cut off the beginning of the three-headed muſcle, or handſomely pluck it away, and then extend it, and turne it up; The internall is eaſily diſcerned when the bladder is taken away.

CHAP. XXXVI.

Of the bones of the Legge, or Shanke.

What the *Patella*, or whirle bone of the knee is.

THoſe which would deſcribe the muſcles of the legge, ought firſt to deſcribe the bones thereof, beginning at the *Rotula*, or whirle-bone of the knee.

This bone is griſtlely on the outſide, and round in compaſſe, but on the inner and middle part after ſome ſort gibbous, but ſomewhat flatted at the ſides, that ſo it may be fitlier applied to the joynt of the knee, and fitted within the anteriour cavity of the two *appendices* of the thigh, and the upper and foremoſt of the legge.

The uſe thereof.

The uſe thereof is to ſtrengthen the joynt of the knee, and to hold the legge at his due extent, ſo that it may not be bended ſo farre forwards, as it is backewards.

What, and how many bones the legge hath.

The bones of the legge are two, the one thicker, called by the particular and proper name, the *Os Tibiæ* or legge-bone; the other which is leſſer, is termed *Perone*, or *Fibula*, but commonly the leſſer *focile*, (and in Engliſh it may be termed the ſhin-bone.) The thicker being hollow and marrowie, is ſeated in the inner part of the leg, having two proceſſes, the one bigger, the other leſſe.

The legge-bone.

The bigger ſeated on the upper part of the bone, and conjoyned to it by *Symphyſis*, makes two ſuperficiall and ſide cavities diſioyned by an indifferent riſing; wherefore this bone is connext to the bone of the thigh by *Ginglymos.* For in the cavities thereof it receives the lower and hinder protuberances of the Appendix of the thigh-bone, but the middle eminencie thereof, is received by it betweene the two protuberances thereof.

What *Diaphyſis* is.

This joynt is ſtrengthened, not onely by the force of the tendons, or muſcles ending there, but alſo of three ſtrong ligaments, of which one proceeds from all the externall, another from all the internall part of that connxeion; the third which we, out of *Hippocrates*, called *Diaphyſis*, from the diſtance or ſpace betweene them. The other proceſſe of the legge-bone, which we called the leſſe, ſeated in the lower part thereof, makes as it were a double cavitie, whereby it receives the *Aſtragalus* or Paſterne bone; but on the inſide it makes the anckle, as the *Perone* makes it without: betweene theſe ancles the *Aſtragalus* is received on the ſides, and turned as the nut in a Croſſe-bow, as often as there is neede to bend or extend the foote. Beſides, this ſame leg-bone, being triangular hath three eminencies made in the ſhape of an Aſſes back; the ſharper deſcends alongſt the fore part, called by the Greekes *Anticnemion*; the ſecond reſides on the inner part, and the third on the outer; all theſe muſt be diligently obſerved, and chiefely, that on the fore part; becauſe it is as a guide and rule to a Chirurgion in the well ſetting of a broken legge. The *Perone*, or ſhinne-bone, is ſeated, as it were, on the outſide, and as behinde the legge-bone; it hath alſo two *appendixes* hollow on the inſide, but gibbous on the out. This bone by the upper of theſe is faſtened and inſerted under the inner, and in ſome ſort the hinder *appendix* of the legge-bone, ſo that it is in no ſort articulated with the thigh, but

The *Perone fibula*, or ſhin-bone.

ſerves onely in ſtead of a leaning ſtocke. But by the lower, this ſame bone is not onely received in the loweſt part of the legge, or anckle, or paſterne bone, but alſo receives part thereof, which is joined on the ſame ſide with the heele, eſpecially then when we bend our foote outwards.

This bone is faſtened to the forementioned bones by *Synarthroſis*, but bound by ſtrong ligaments proceeding from the ſame bones, and mutually ſent from one to another, or if you had rather, from the upper into the lower, as we ſaid in the arme. But this ſame *fibula* or ſhin-bone is alſo ttiangular, having three lines, of which one ſtands outwards, another on the foreſide, and the third behinde.

Chap. XXXVII.

Of the Muſcles of the Legges.

Their number. ALL the motions of the legge are performed by eleven muſcles, of which there be ſixe on the foreſide, and five on the hinde. But of theſe, ſome move the legge onely, as thoſe which take their originall from the bone of the thigh; others truly move the legge, but with the thigh, as thoſe which ariſe above the thigh, that is, from the hanch, huckle, and ſhare-bones.

The *Longus*. The firſt of theſe on the foreſide, called the Long, but commonly the *Sutorius* (or Tailor-muſcle by reaſon of its action) it ariſes from the lower and fore extremity of the ſpine or appendix of the hanch-bone, and deſcending obliquely above the other muſcles, is inſerted by a large and membranous tendon, into the fore and inner part of the legge under the knee; the action thereof is to croſſe the legges, but being firſt bended by the muſcles preſently to be treated of, it helpes alſo the three headed muſcle in the performance of the forementioned action.

The *Membranoſus*. The ſecond of theſe fore muſcles is termed the *membranoſus*, or membranous, becauſe it is wholy ſuch, unleſſe at the originall where it deſcends fleſhy from the roote and baſis of the above mentioned ſpine of the hanch-bone, and that obliquely with its membranous and broad tendon (mixed with the common coat of the muſcles) into the outward part of the legge, which it moves outwards, as alſo the thigh with the foure twin muſcles; for as we have in another place obſerved, of two oblique motions, concurring in one, is made a right motion; and beſides, almoſt all the motions of the body, are thus performed; the muſcles which performe ſuch motions are placed and oppoſed in an oblique ſite, as may be perceived by the motions and ſite of the muſcles of the hand taken in generall.

The *Rectus*. The third, called the *Rectus*, or right (becauſe it deſcends above the *Crureus*, alongſt the right fore-line of the thigh, betweene the two Vaſte muſcles) comes forth betweene the extremity of the appendix of the hanch-bone and cavity thereof, with a very ſtrong ligament, and then is inſerted into the fore part of the legge, paſſing over the midſt of the whirle-bone of the knee; it extends the legge, with the three following, but by accident it may helpe the bending of the thigh.

The two *Vaſti*. The fourth and fifth are called *Vaſti*, Vaſte or huge muſcles, by reaſon of their largeneſſe; the one of theſe is internall, the other externall: they both ariſe with right fibers, from their originall, but with oblique at their inſertion, by reaſon whereof they both ſeeme to have a compound action from a right and oblique motion; the right helping for the extenſion of the legge, but the oblique to draw one knee to another, or to deſioyne both the knees; the internall comes by its right fibers from the root of the little *Trochanter*, but by its oblique from the inner deſcendent line of the thigh. The externall paſſes forth by its right fibers from the root of the great *Trochanter*, but by the oblique from the externall deſcendent line of the ſame bone. But all theſe fibers are in certaine places ſo mixed with the *Crureus* that they cannot be ſeparated unleſſe you violate the one of them; they goe into the legge (each on his ſide) above the whirle-bone of the knee alongſt the ſides of the right muſcle, with which it makes an unſeparable tendon, as you ſhall preſently

The *Crureus*. heare. The ſixt and laſt of theſe fore muſcles called the *Crureus*, or Thigh-muſcle, (by reaſon of the ſtraite and firme adheſion, which it hath with the thigh-bone, which is by ſome called *Crus*) from the ſpace betweene the two Trochanters deſcends under the right muſcle,and two vaſte muſcles into the fore part of the thigh, even to the whirle-bone of the knee. But we muſt note that theſe foure laſt muſcles make a common thicke and broad tendon with which they couer the *Patella*, or whirle-bone, and all the fore dearticulation of the knee, that they cannot be ſeparated without tearing; wherefore we muſt thinke that this tendon, ſerves the knee for a ligament; now all theſe muſcles performing their action together, extend the legge. The five hinde muſcles follow to be ſpoken of; of which three ariſe from the tuberoſitie of the huckle-bone,going into the inner part; the fourth from the middle of the *Pubis*,called *Biceps*, that is, thetwo headed muſcle into the outſide of the legge. Of the internall,one paſſing frõ the forementioned tuberoſitie,deſcends ligamentous even into the midſt of the thigh, and then becomming fleſhy, is inſerted by its tendon, after the manner we formerly mentioned.

The three Internall.

The other being ſlender, paſſing forth alſo from the ſame place, with its tendon, is inſerted with the tendon of the long muſcle,and ends in the inner part of the legge, which with its companion, it drawes inwardly, and brings to the other, which ſame thing it performes in the thigh, by the helpe of the three headed muſcle.

The third, being the inner, or hinder, deſcends from the middle part of the ſhare-bone, with a broad and ſlender ligament, and is inſerted with a round tendon, into the inner part of the legge after the manner of the fore-mentioned.

The fourth called *Biceps* takes one of the two heads, of which it conſiſts,from the laſt mentioned tuberoſitie; the other from the outer line of the thigh, but is inſerted into the externall part of the legge, as we formerly ſaid.

The *Biceps*, or two-headed muſcle.

The fifth and laſt called the *Popliteus* deſcends obliquely fleſhy from the externall condyle or knot of the thigh, into the inner and hinder part of the legge, at the joyning thereof to the ſhinne-bone; the action thereof is, to draw the legge, after a manner inwards.

The Popliteus or ham muſcle.

Chap. XXXVIII.

Of the Bones of the Foote.

THe Order of Anatomy requires, that we now proſecute the muſcles moving the foote; but becauſe we ſhould in vaine deliver their inſertion, the diſpoſition and condition of the bones of the foote, not being firſt known, wherefore it firſt behoves us, to ſet forth their deſcription. Therefore the bones of the foote are ſixe and twenty in number,diſtinguiſhed into three ranks, that is, the bones of the *Tarſus* or Inſtep, are ſeven; theſe of the *Pedium*, the afterwreſt, or backe of the foote, five, and thoſe of the toes foureteene. Of the ſeven bones of the inſtep, there are 4. named, and 3. unnamed. The firſt of the named immediately following the bones of the legge, is called *Aſtragalus*, the paſterne, or ankle-bone. This hath three connexions, one, as we ſaid before, in the upper and broader part with the bones of the legge, of which it is received; the other in the lower and hinde part, by which it receives the upper and inner proceſſe of the bone of the heele; the third on the foreſide by which it is received in the cavitie of the *Os naviculare* or *Scaphoides*, that is, the boate-like-bone. By the firſt connexion the foote is extended and bended; by the ſecond it is moved with the heele to the ſides: the two firſt connexions are by *Diarthroſis*, the laſt by *Synarthroſis*. But it is ſtrengthened by ſtrong and broade ligments, deſcending, and aſcending from one bone into another; alſo they are ſtrengthened by membranes, muſcles and tendons, deſcending to the foote, above and under theſe joints. But this bone hath 3. proceſſes, as 3. feete faſtened to the bone of the heele; of which the firſt and leaſt is under the outer ankle; the bigger (which *Galen* ſaith, makes a round head, faſtened on a long necke) lookes towards the fore part of the foote, over againſt the great toe, and the next toe to it; the middlemoſt is at the heele, behinde the legge-bone.

Their number.
The bones of the Inſtep.

The *Aſtragalus*, its three connexions, and their uſe.

Its three proceſſes.

I paſſe over in ſilence many other things, as the ſmoothneſſe and aſperity or roughneſſe of the bone, which I had rather you ſhould learne by ocular inſpection, than by booke. The ſecond bone lying under this is called the *Calcaneum*, or heele-bone, being the biggeſt of all the bones of the foote, upon which all the body relies when we go. It hath two upper proceſſes, the one great, the other little. The great is received in the hinde and outer proceſſe of the *Aſtragalus*; the leſſer is received on the inſide in the 3. proceſſe of the ſame bone, which we ſaid had a round head faſtened to a long neck. Beſides, it is round on the hinde part, and much diſioyned from the legge-bone, but on the fore and longer part, it is knit by *Synarthroſis* to the Die-bone, whoſe lower and inner part, it ſeemes to receive; the ſuperficies thereof is wholy unequall, and riſing up with many ſwellings. On the inner ſide it makes as it were a channell, ſo to give way, as well to the veſſels as tendons going to the ſole of the foote and toes. Laſtly, we muſt conſider the holes by which the veſſels paſſe into that bone to give it nouriſhment; by reaſon of which veſſels the fracture of this heele-bone, is very dangerous, becauſe of the preſſing and contuſion of the veſſels, as *Hippocrates* ſhewes. For the ligaments of this heele, or heele-bone they are ſuch, as theſe of the *Aſtragalus*, to wit, tendons, membranes and ligaments properly ſo called, comming from one bone to another. The third bone of the foote is named *Scaphoides* or boate-like, from the reſemblance it hath to a boate, for on that part which lookes towards the poſterne bone, it is hollow; but on that part which is next the three *Innominata*, or nameleſſe bones (which it ſuſtaines, and of which it is received, as it in the cavity thereof receives the head of the *Aſtragalus*) it is gibbous like the bottome of a boate. The connexions thereof are by *Synarthroſis*, and they are ſtrengthened by the forementioned ligaments; this ſame bone is arched on the upper part, but ſomewhat hollowed or flatted below: the inner part ends in a point, like the prow of a ſhip, but the outer obtuſe like the ſterne of a ſhippe. The fourth bone of theſe which have names, is called the *Cuboides*, from the reſemblance of a Die; although that ſimilitude be very obſcure. On the fore part it ſuſtaines the toes; which by a certaine proportion to the fingers of the hand, may be called the Ring and little toes, but it is ſuſtained on the hinde part, with the backe part of the heele; on the inner ſide it is joyned with the boat-like-bone, and that nameleſſe bone which ſuſtaines the middle toe; on the outſide, it produces a riſing like the backe of an Aſſe, which on the lower part is extended tranſverſly all the length thereof; at the two ſides of this eminency or riſing, there are two ſmall cavities, in the forme of a channell. The firſt and the greater of the *Oſſa innominata*, or nameleſſe bones, ſuſtaines the great toe; the leſſer and ſecond, the next toe thereto; the third and middle in bigneſſe, the middle toe. Theſe three bones are arched on their upper part, but ſomewhat hollowed below. They are knit to the three forementioned bones by *Synarthroſis*, of which they are received, but on the hinde part with the boate-like bone which they receive. Now we muſt come to the bones of the ſecond ranke, that is, of the *Pedium*, or backe of the foote; theſe are five in number, bearing up the five bone of the toes. They are ſomewhat gibbous on their upper part, but hollow below; each of them hath two proceſſes at the end thereof, by the lower and firſt of which they receive the three nameleſſe and Die-bone, but by the upper made into a round head, they are received of the firſt bones of the toes. Their connexions, whether with the toes, or bones of the inſtep, are by *Synarthroſis*. The ligaments as well proper as common are ſuch, as we ſaid of the former. The bones of the third order now remaine to be ſpoken of, which wee ſaid, make the toes, and they are foureteene, two of the great toe, but three of each of the other toes. The firſt is ſomewhat longiſh, but the reſt are very ſhort, except that of the great toe, all of them on the upper ſide are round and convexe, but on the lower ſomewhat hollow, and plaine long wiſe, that the tendons which bend them, may paſſe more ſtraightly and ſafely without inclining to either ſide, even to their furtheſt joynts; although ſuch paſſages are much helped by the membranous and common ligament, which riſing from the ſides of theſe bones, involves theſe tendons, as we mentioned in the fingers. To conclude, each of theſe bones the laſt excepted, have a double connexion by *Diarthroſis*, they are all unequall in their bignes, that is, thicke at their beginning (where they receive the heads of the precedent bones,

The deſcription of the *Calcaneum* or *Calx*.

Why a fracture of the heele is ſo dangerous. *Hippocrates, Sect.3.lib. de fracturis.*

The *Os Scaphoides*, or boate-likes bone.

The *Os Cuboides* or Die-bone.

The *Oſſa innominata*, or nameleſſe bones.

The bones of the foote or *Pedium*.

The bones of the toes.

bones,upon which they move,as a doore upon the hinges) and ſo they grow ſmaller towards the ends, but by their ends, they are received of the following bones: at their ends they riſe into two eminencies on their ſides;diſtinguiſhed by a cavity betweene them,through which occaſion they are farre thicker at their ends,than in their midle.

The Figure of the bones of the Foote properly ſo called.

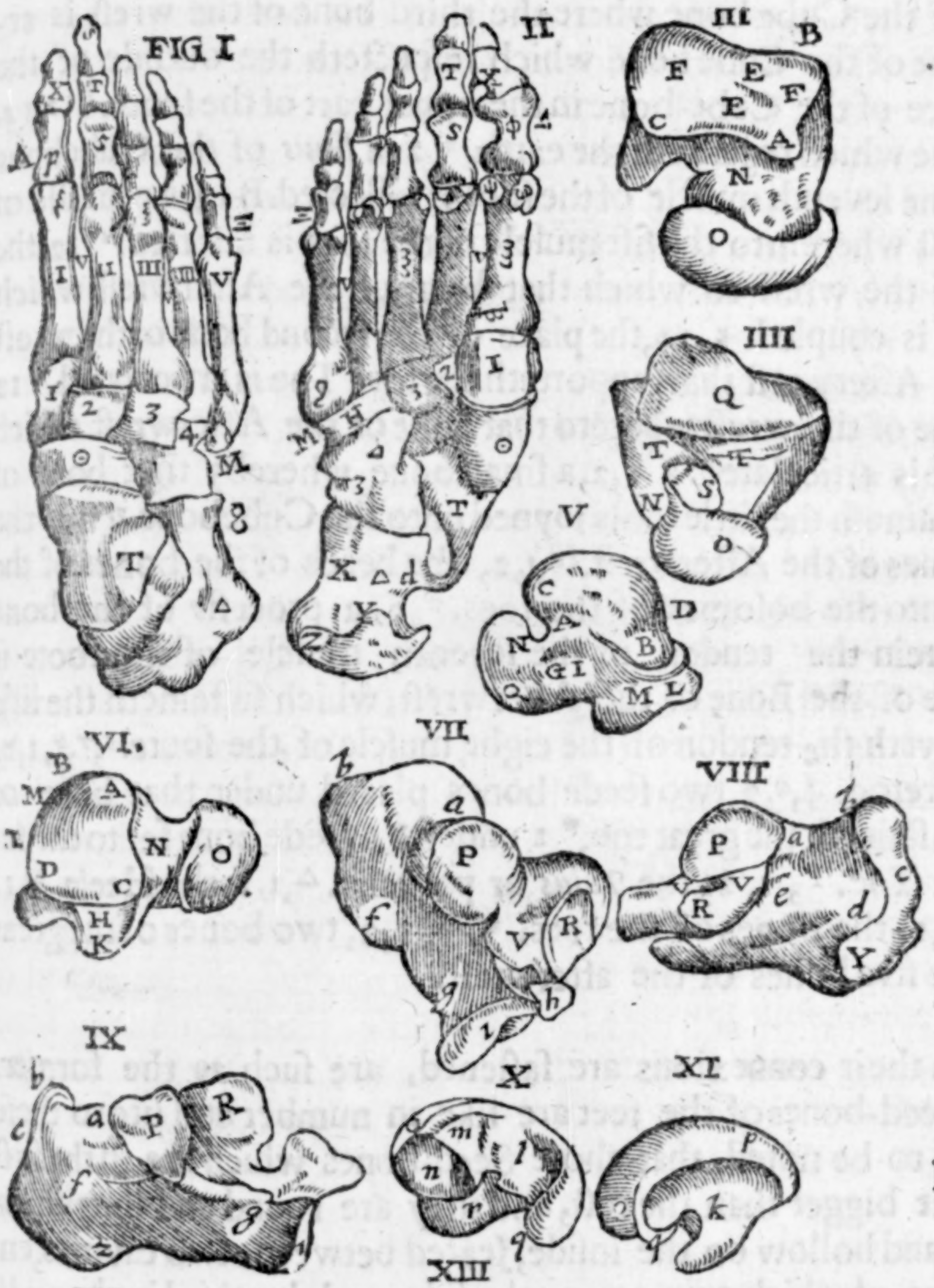
Figure 1.*and* 2,*ſhew the bones of the right foote faſtened together their upper face and their neather face.*

*Fig.*3,4,5;*and* 6,*ſhew the upper,lower,inner and outer ſides of the Talus or paſterne.*

*Fig.*7,8,9 *ſheweth the ſame ſides of the Heele.*

*Fig.*10,*and* 11.*ſheweth the forward and backward ſide of the boate bone.*

*Fig.*12,*and* 13.*ſhew the fore and back part of the wreſt made of foure bones.*



ABCD 3,5,6. The protuberation of the *Talus* joyned to the appendix of the leg-bone, and of this protuberation foure ſides.

EE,3, A *ſinus* inſculped in the protuberation of the *Talus*.

FF 3, two bunching parts of the *Talus*.

G 3, the inner ſide of the protuberation of the *Talus* cruſted over with a griſtle, joyned to the inner ankle.

H 6,The outward *ſinus* of the protuberation of the *Talus* covered over with a griſtle, and receiving the inner ankle.

I 5. A rough *ſinus* of the *Talus*,receiving a griſtly ligament from the inner ankle.

K 6,a *ſinus* of the *Talus* receiving a griſtly ligament from the outward ankle.

LM 5,6, two *ſinus* in the hinder part of the *Talus*.

N 3,4,5,6, the necke of the *Talus* or paſtern bone.

O 3,4,5,6. the head of the *Talus* going under the *ſinus* of the boate bone.

P 7,8,9. the head of the bone of the heele cruſted over with a griſtle,and going under the *ſinus* of the *Talus* or the paſterne bone.

Q,4. a large *ſinus* of the *Talus* receiving the head of the heele.

R 7,8,9. a *ſinus* of the heele whereto the lower part of the head of the *Talus* is joyned.

S 4,the lower part of the head of the *Talus* going into the *ſinus* of the heele.

TT 4,a ſharpe *ſinus* of the heele receiving a griſtly ligament from the paſterne bone.

XY Z 2,the place of the heele.

YZ 2,Y 8,Z 9.a proceſſe of the heele made for the production of muſcles.

ab 7 8,9, from *a* to *b* the diſtance of the upper part of the heele. *c* 8,9. the hinder part of the heele. *d* 2,8, the inner ſide of the heele. *e* 8, the place where the tendons that run to the bottome of the foote are reflected. *f* 7 8, the utter ſide of the heele. *g* 1,7, 9, here the tendons of the 7 and 8 muſcles of the foote are ſtretched out. *h* 7. the forepart of the heele which is joyned to the paſterne bone. *i* 7, that part of the heele which is joyned to the Cube-bone. *k* 11, the *ſinus* of the Boat-bone receiving the head of the *Talus*. *lmn* 10, three ſurfaces of the Boat-bone lightly prominent, which are articulated to the bones of the wreſt. *op* 11, the upper part of the Boat-bone regarding the top of the foot. *q r* 10, and *q* 11, his lower part. *q* 10, 11, A *ſinus* through which the ſixt muſcle of the foote is led. *ſ t u* 13. the plain ſurfaces of the three inner bones of the wreſt whereby they are articulated to the Boat-bone. *x* 13, a ſhallow *ſinus* of the Cube-bone whereby it is articulated to the heele, αβ 12, the place of the Cube bone to which that bone of the Afterwreſt is joyned which ſupporteth the laſt Toe ſave one. γ 12, 13, the place of the Cube bone where the third bone of the wreſt is articulated. δ 12, 13. that part of the Cube bone which reſpecteth the outſide of the foote. ε 12, 13. the ſurface of the Cube-bone in the upper part of the foote. ζ 2,13, that part of the Cube bone which regardeth the earth. η 2, a *ſinus* of the Cubebone at which the tendon of the ſeventh muſcle of the foot is reflected. B 13, a proceſſe of the third bone of the wreſt whereinto the fift muſcle of the foot is inſerted. ι 12. the place of the inner bone of the wreſt to which that bone of the Afterwreſt which ſuſtaineth the great Toe is coupled. κ 12, the place of the ſecond bone of the wreſt whereto the bone of the Afterwreſt that ſupporteth the fore Toe is articulated. λ 12 the place of the third bone of the wreſt whereto that bone of the Afterwreſt which ſupporteth the middle toe is articulated. μ 1,2, a ſmall bone whereby that bone of the Afterwreſt which ſuſtaineth the little toe is joyned unto the Cubebone. νν 1,2 the diſtances betwixt the bones of the Afterwreſt. ξξ,1,2, the heads of the bones of the Afterwreſt which enter into the boſomes of the toes. π 2, a proceſſe of the bone of the afterwreſt wherein the tendon of the ſeventh muſcle of the foote is implanted. ρ 2, a proceſſe of the Bone of the Afterwreſt, which ſuſtaineth the litle toe, which proceſſe receiveth the tendon of the eight muſcle of the foote. ς,τ,υ,1,2, the three bones of the foretoe. φ,ω,2, two ſeede bones placed under that bone of the afterwreſt which ſuſtaineth the great toe,* 2 under X. a ſeede bone ſet to the ſecond joynt of the great Toe. Γ, 1, 2, the *Talus* or paſterne. Δ,1,2, the Heele. Θ,1, 2, the Boat-bone. Λ, Ξ,1,2, the bones of the toes. Φ, Χ, 1,2, two bones of the great toe I,II,III,IV,V, 1. the five bones of the afterwreſt.

The Ligaments by which their connexions are faſtened, are ſuch as the former. The *Oſſa ſeſamoidea* or Seed-bones of the feet are like in number and ſite to theſe of the hands. But this is to be noted, that thoſe Seed-bones which are in the firſt articulation are ſomewhat bigger than the reſt, and they are round and longiſh on the out ſide, but ſmooth and hollow on the inſide, ſeated betweene two cavities, encompaſſed by three riſings, of which two are on the ſides, and the third in the midſt of the extremity of the firſt bone of the *Pedium*, which chiefly beares up the great toe. To conclude, before we come to ſpeake of the muſcles, we muſt obſerve that the foote was made for two commodities. The firſt is to ſtay and beare the whole body when we ſtand, for which cauſe nature ſet not the great toe contrary to the other, as it placed the Thumbe on the hand. The other is for apprehenſion, or taking hold of, wherefore nature framed and made the foote and theſe moveable and joynted in the toes, as in the fingers of the hand. Beſides alſo for that we muſt goe upon our feet, Nature hath made them in ſome places hollow on the lower ſide, & in other ſome plaine in a triangular figure, that ſo our feet may carry us over every ſoile, plaine mountanous, equall and unequall, through all parts of the world.

The Seed-bones of the foote.

The twofold uſe of the feete.

CHAP. XXXIX.

Of the Muſcles moving the foote.

Their number.

THe muſcles of the Legge moving the foote are abſolutely nine, three in the fore part and ſixe in the hinde. Two of the three fore muſcles bend the foote, when they joyntly performe their action, but when ſeverally, each drawes it to his ſide; the third chiefly extends the Toes, for other whiles it ſeemes by its ſlenderer and longer Tendon (which exceeds not that bone of the *Pedium* which ſuſteines the litle Toe) to helpe alſo to bend the foote.

Muſculus Peronæus.

The firſt is called *Peronæus*, becauſe it deſcends alongſt the bone *Perone*; the other the *Tibiæus anticus*, for that it deſcends along the *Os Tibiæ*, or bone of the Legge. The third from its action is called the *Digitumtenſor*, or Toe-ſtretcher. For their originall the *Peronæus* which ſeemes to have two heads, deſcends from the upper appendix of the *Perone* or ſhin-bone by its firſt head, but by the other from the middle of the ſame bone from the fore ſide into the hinde, as the ſuperficies ſhewes which paſſes betweene the fore and outward line of the ſaid bone; but after it arives at the lower and hinder appendix of the ſame bone, behind the outer Anckle it produces two tendons, which by the guidance of the Ligaments as well proper, as common, goe, the thicker under the ſole of the foote, ending in the Die-bone and that bone of the *Pedium* which ſuſteines the great Toe; the leſſer goes on the outſide to the Die-bone, & the laſt & leaſt bone of the *Pedium* which beares up the litle Toe, ſometimes a ſlender portion thereof is produced even to the ſide of the litle Toe, extending it and drawing it from the reſt. The *Tibiæus anticus* or Fore legge muſcle proceeding from the upper and outer appendix of the Leg-bone deſcends above the ſurface of the ſame bone, which is betweene the fore and outer line to which it adheres, as alſo to that ſurface even to the midſt, from which place it produces one tendon, which deſcending on the fore and loweſt part, ends on the outſide into two of the nameles bones, that is, into the firſt which is the thicker, and into the middlemoſt, but beſides by a ſlender portion thereof it is extended into the firſt and greater bone of the *Pedium*, ſo to extend the great Toe, drawing it inwards to the other foote. And this muſcle with the precedent bends the foote, if they both performe their parts at once; but if ſeverally, each drawes the foote towards his ſide. The third which is the *Digitumtenſor*, or Toe-ſtretcher, is two fold; the one takes its originall from the top of the Legge, and running alongſt the ſhin-bone and paſſing under the ring, carries it ſelfe into the foote, in which it ends by five tendons going to all the joynts of the Toes, and by a ſixth at that bone of the *Pedium* which ſuſteines the litle Toe, whereby (as wee formerly ſaid) it helpes the bending of the foote. The other deſcends into the midſt of the ſhin-bone, and ſomewhat faſtened thereto by one tendon paſſing under the Ring it goes to the great Toe. But you muſt note that all theſe. Tendons have nervous, ligamentous and fleſhy fibers ſo ſeparated from each other, that they can equally alone performe their function, as if they were more diſtinct muſcles. And wee muſt thinke the ſame of the reſt which have diſtinct Tendons preſently from their fleſhy part.

Tibiæus anticus,

The Toeſtretcher is two-fold.

The 6 hinde muſcles.

The ſixe hinde muſcles follow, of which the two firſt are called the *Gemelli* or Twins by reaſon of the ſimilitude of their thickneſſe, originall, inſertion and action. The third is called the *Plantaris*, becauſe it is ſpent upon the ſole of the foot, as the *Palmaris* upon the palme of the hand. The fourth is termed the *Soleus* or ſole muſcle by reaſon of the reſemblance it hath to the fiſh of that name. The fift the *Tibiæus poſticus* or hindlegge Muſcle which deſcends alongſt the backe part of the leg-bone. The ſixth and laſt the *Digitumflexor* or Toe-bender, equivalent to the Deepe muſcle of the hand, ſome make but one muſcle of this and the *Tibiæus poſticus*, which produces three tendous; others had rather make three, as thus, that one ſhould be the *Tibiæus*, the other the bender of foure Toes, the third the bender of the great Toe.

The 2 *Gemelli* or Twins muſcles.

Now for the two *Gemelli* or Twins, the one is internall, the other externall; the internall paſſes forth from the roote of the inner Condyle of the Thigh; but the externall from the externall Condyle;and from this their originall preſently becomming fleſhy,eſpecially on the out ſide,they meet together a litle after in their fleſhy parts,and with the *ſoleus* they make the thicke and great Tendon at the midſt of the legge, which from thence is inſerted into the backe part of the heele; in this very Tendon breed painfull kibes. The action thereof is, to helpe our going by putting forth the foote, whileſt it drawes the Heele towards its originall.

In what place the kibes breed

The Plantaris

The *Plantaris* the leaſt and ſlendereſt of them all,paſſes forth fleſhy from the outward head of the legge-bone, and from thence the ſpace of ſome foure fingers bredth it ends in a ſtrong and ſlender Tendon, which it ſends betweene the Twin and ſole muſcles to the ſole of the foot,there to produce a membrane which covers the ſole of the foote,and a muſcle equivalent to the upper bender of the Hand.

The *Soleus.*

The *Soleus*, or ſole muſcle the thickeſt of them all, and ſeated under the Twin muſcles,deſcends from the commiſſure of the legge and ſhin-bones, and about the midſt of the legge, after it hath mixed his tendon with that of the Twin muſcles, it runs into the foreſaid place that it may extend the foote for the foreſaid uſe,

The *Tibiaus poſticus.*

The *Tibiaus poſticus* deſcends from the hinder appendix of the legge and ſhinbones, and adhering to them almoſt as fare as they goe,by a ſtrong Tendon,being as it were bony at the end thereof,it is inſerted into the Boat-like bone and the two firſt nameles bones ſo to helpe the oblique extenſion of the foote.

The *Digitumflexor* twofold.

The laſt being the *Digitumflexor* or Toe-bender is twofold, for one ariſes from the legge-bone,in that place where the *Poplitaus* ends,and inſerted into that ſame bone it goes even to the backſide of the inner ankle & from thence into the joynts of foure of the toes. The other drawes his originall from almoſt the middle of the ſhin-bone, and ſomewhat inſerted into it,it goes by the heele and paſterne bone to the great toe, mixed with the precedent; their action is to bend the firſt joynt of the Toes, rather by the force of the common Ligament, than by the ſmall portion of the Tendon which ends there. But it is their action to bend the laſt dearticulation of the Toes by their proper inſertion.

Chap. XL.

Of the Muſcles moving the Toes of the feete.

Their number.

Now follow the muſcles moving the Toes; theſe are eight in number, one on the upper,and ſeven on the lower ſide. The firſt proceeds from the Paſterne,heele and Die bones below the externall Anckle, or the Ligament of theſe bones with the Legge-bone, and obliquely ſtretched to the top of the foote is parted into five ſmall tendons to the ſides of the five toes,ſo to draw them outwards towards its originall, whereupon it is called the *Abductor* of the Toes, and alſo *Pedioſus*, becauſe it is ſtretched over the *Pedium*,or backe of the foote.

The *Abductor* of the Toes,or *Pedioſus.*

The *Flexor ſuperior.*

The firſt of the ſeven of the lower ſide called the *flexor ſuperior* or upper bender, ariſes from the heele and ſtretched alongſt the foote under the ſtrong membrane, (which from the heele is ſtraitly faſtened to the extremity of the bones of the *Pedium* to ſtrengthen the parts conteined under it) is inſerted by foure Tendons,at the ſecond joints of the foure Toes which it bendes. Here you muſt note that neer the inſertion thereof, this muſcle divides it ſelfe, like that muſcle of the hand which is called *ſublimis*,that ſo it may give way to the Deepe,which (as we ſaid) deſcends alongſt the fingers, to which a certaine common membranous Ligament adjoynes it ſelfe,which involues and faſtens it to the bone all alongſt the lower part of the fingers, even to the laſt dearticulation.

The muſcle equivalent to the *Thenar.*

The ſecond equivalent to that muſcle of the hand which is called *Thenar*, ſeated on the inner ſide of the foote,ariſes from the inner and hollow part of the heele and paſterne bones and ends in the ſide,and inner part of the great Toe, which it drawes from the reſt,inwards. This may be divided into two or three muſcles,as the *Thenar* of the hand,to draw the great Toe to the reſt,as much as need requires,juſt as we ſaid of the Hand. The third anſwerable to that of the hand which is named the *Hypothenar*,paſſes from the outer part of the heele and aſcending by the ſides of the foote it is in like manner inſerted into the ſide of the litle Toe, ſo to draw it from the reſt;

to which ſame action a certaine fleſh contained under the ſole of the feete may ſerve, which is ſtretched even to theſe Toes, that alſo it may ſerve to hollow the foote. The foure *Lumbrici* or wormy muſcles follow next, which from the membrane of the Deep Toe-bender are inſerted into the inner & ſide part of the foure Toes, ſo to draw them inwards, by a motion contrary to that which is performed by the *Pedioſus*. The *Interoſſes* or bone-bound muſcles of the *Pedium* or back of the foot, remaine to be ſpoken of: Theſe are eight in number, foure above, and as many below, different in their originall, inſertion and action; for the upper becauſe they draw the foote outwards with the *pedioſus*, ariſe from the fore and inner part of that bone of the *pedium*, which beares up the litle Toe (and ſo alſo the reſt each in its order) and are inſerted into the outward & forepart of the following bone. The lower on the contrary paſſe from the fore and outer part of that bone of the *pedium*, which beares up the Great Toe (and ſo each of the reſt in its order,) but are inſerted into the inner and upper part of the following bone, ſo with the wormy muſcles to draw it inwards, or to hollow the foote as the outwards, or to flat the foote, as we ſaid of the *Interoſſes* of the hand.

The 4 *Lumbrici*.

The deſcription of the upper and lower *Interoſſes*.

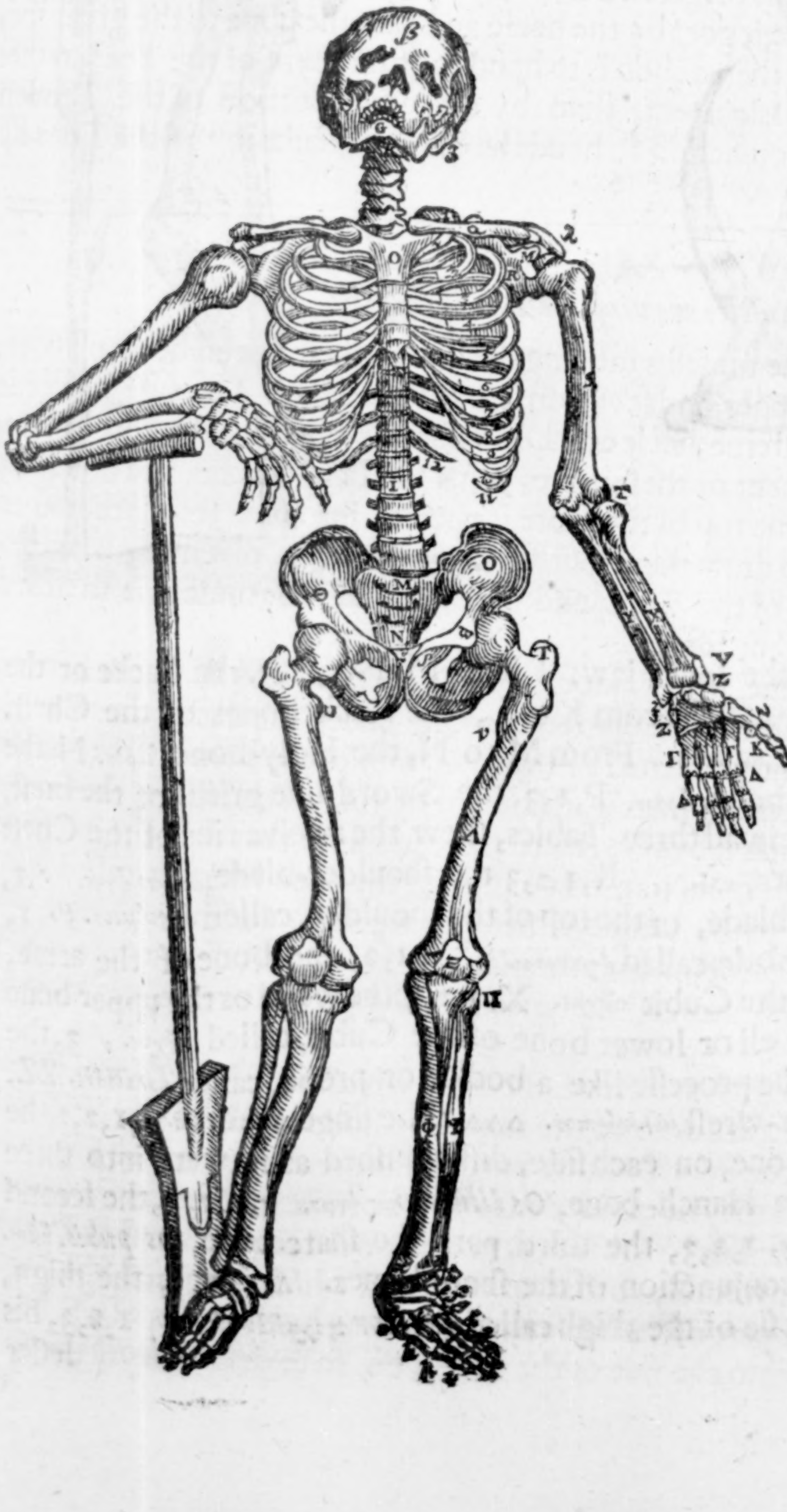
CHAP. XLI.

An Epitome or brieſe recitall of the bones in a mans body.

THe whole head which hath the leaſt conſiſts of 60. bones; but that which hath moſt of 63. that is, 14 of the *Cranium* or ſcull, 14 or 17. of the face, and 32 teeth; Of the bones of the ſcull there be 8 conteining and ſixe conteined; the

The bones of the Scull, 14.

This firſt ſheweth the forepart of the Sceleton of a man, &c.



The Declaration of theſe three figures put into one.

A 3. The Coronall Suture called in Greeke στεφανιαία.

B 2 3. The ſuture like the letter Λ, called λαμβδοειδῆ.

C 2, The ſagittall Suture called ὀβελιαῖα.

D 2,3. The ſcale-like *Conjunction* called λεπιδοειδεῖς.

α 2,3, *Os verticis*, or *ſyncipitis*, the bone of the *Syncipꝰt*, called *Os* βρέγματος.

β, 1,3. The forehead-bone, that is, μετώπου.

γ, 2, 3. The bone of the Nowle or ἰνίου.

δ, 2,3. The bones of the temples or κροτάφων.

ε, 3. An appendix in the temple-bone like a Bodkin, στυλοειδής.

ζ 1,2,3. A proceſſe in the temple-bone like the teate of a dugge, called therefore *Mamillaris* & μαστοειδής

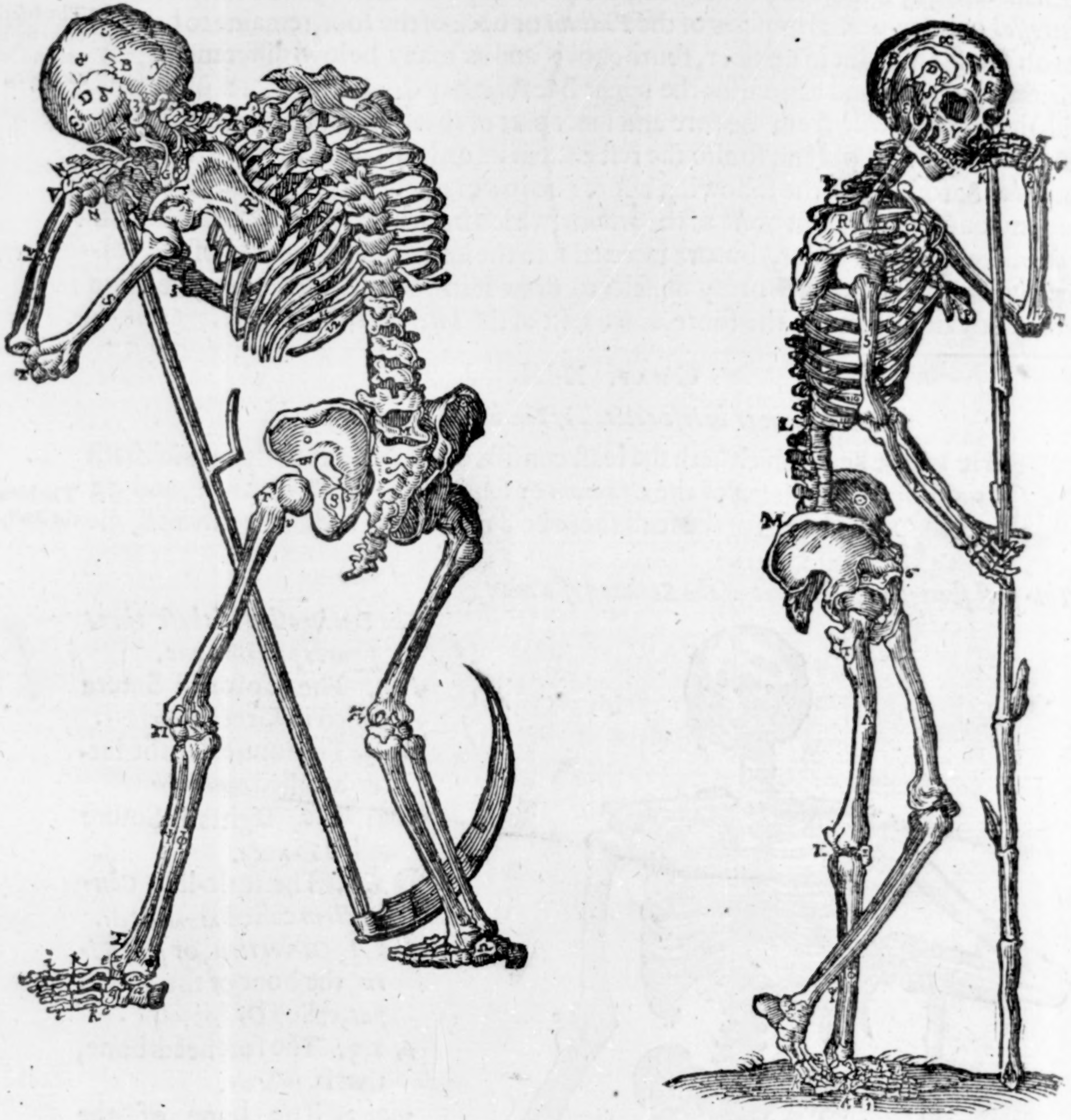
E, 2, 3. the wedge-bone, σφηνοειδές.

η, 3, the ſtony part of the Scull.

θ, 3, a proceſſe of the wedge-bone much like the wing of a Bat, and therefore called πτερυγοειδεῖς

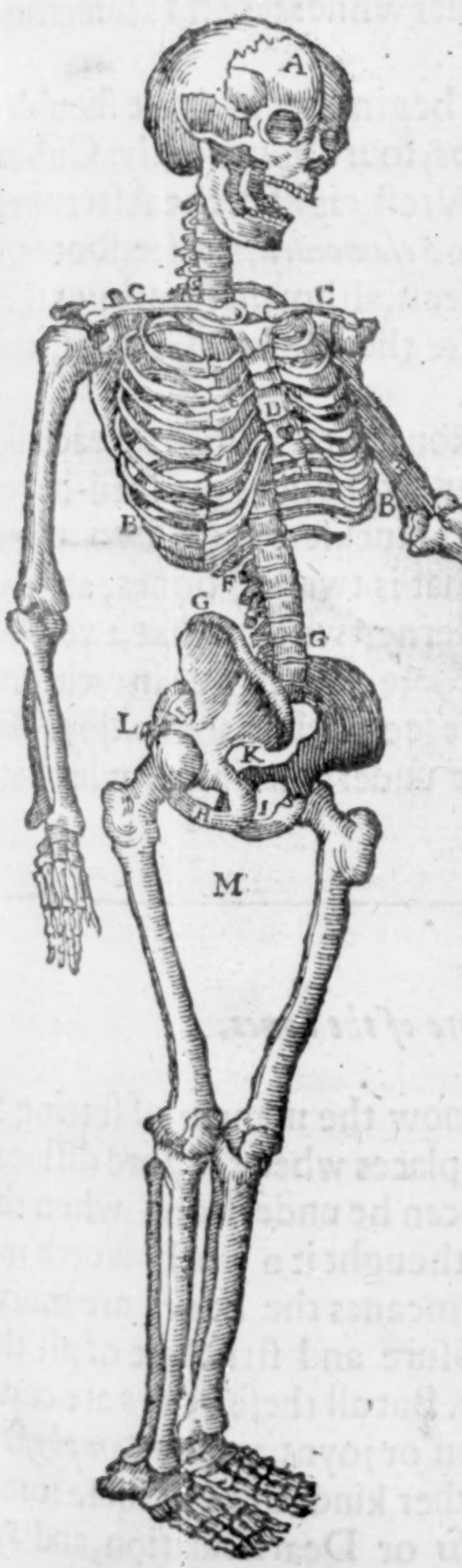
F, 1,

The 2 and 3 Figures ſheweth the backſide of the Sceleton, and the laterall part of the Sceleton.



F, 1, 2, 3. the yoke-bone ζύγωμα. G 1, 3. the lower jaw. I, K, L, M, N, 1, 2, 3. the backe or the ſpine, ῥαχίς. From I to K, the Necke, τράχηλος. From K to L, the Rackebones of the Cheſt. From L to M, the rackebones of the Loynes. From M to N, the Holy-bone, ἱερὸν. N, the Rumpe bone, κόκκυξ. O, 1, 3. the breſt-bone, στέρνον. P, 1, 3. the Sword-like griſtle of the breſt, ξιφοειδὴς Char. 1, 2, 3, as farre as to 12. in all three Tables, ſhew the twelve ribs of the Cheſt πλευραί. Q 1, the clavicles or coller bones, κλεῖδες. R, 1, 2, 3 the ſhoulder-blade, ὠμοπλάτες. λ, 1, 2, 3, the upper proceſſe of the ſhoulder-blade, or the top of the ſhoulder, called ἀκρώμιον. μ, 1, 3, The lower proceſſe of the ſhoulder-blade: called ἀγκυροειδὴς. S, 1, 2, the bone of the arme, called *Humerus* and βραχίων. T, V, 1, 2, 3, the Cubit πῆχυς. X, 1, 2, 3: the wand or the upper bone of the Cubit, called κερκίς. Y, 1, 2, 3, the ell or lower bone of the Cubit, called πῆχυς. ν 3, the proceſſe of the Cubit, ὠλέκρανον. ξ, 13, the proceſſe like a bodkin or probe, called στυλοειδὴς. ZZ: 1, 2, 3, the wreſt καρπὸς. ΓΓ, 1, 3, the after-wreſt μετακάρπιον. ΔΔΔ. 1, the fingers δάκτυλοι. Θ, 1, 2, 3, the bones joyned to the ſides of the Holy bone, on each ſide, diſtinguiſhed as it were into three parts. ο, 1, 2, 3, the firſt part called the Hanch-bone, *Os Ilium*, λαγόνων. π, 1, 2, 3, the ſecond part the bone of the *Coxendix* ἰσχίον. ϛ, 1, 2, 3, the third part the ſhare-bone, *Os pubis*, ἥβης. σ, 1, 2, 3, a griſtle going betweene the conjunction of the ſhare-bones. Λ, 1, 2, 3, the thigh, μηρὸν. τ, 1, 2, 3, the greater outward proceſſe of the thigh called *Rotator* τροχαντὴρ μέγας. υ, 1, 2, 3, his leſſer and inner proceſſe. Ξ, 1, 2, 3, the whirlebone of the knee, *Patella Rotutula*, ἐπιμυλίς. Π, Σ, 1, 2, 3, the leg, κνήμη, Φ, 1, 2, 3, the inner & greater bone of the leg προκνήμιον. Ψ, 1, 2, 3, the utter and ſmaller bone of the leg, called the *Brace-bone*, *Fibula*, περόνη. φ, 1, 2, 3, the proceſſe of the Leg or the inner anckle called *Malleolus internus*. X, 1, 2, the proceſſe of the brace of the out-ward ankle, both of them are called in greeke, σφυρὸν. Ω, 1, 2, 3, the bone called the cockal, *Talus*, *baliſta*, *Os* ἀστράγαλος. *a*, 2, the Heele *Calx*, πτέρνα. *b*, 1, 3, the bone called *Os Naviculare*, σκαφοειδὲς. *cc*, 1, 2, 3, the wreſt of the foot called *Tarſus*, conſiſting of foure bones, ταρσὸς. *d*, *e*, *f*, 1, 2, 3, three inner bones of the wreſt of the foot, called by ſome χαλκοειδῆ. *g*, 1, 2, 3, the utter bone of the wreſt of the foot like a Dye, κυβοειδὲς. *hh*, 1, 2, 3, the afterwreſt of the foote called *Pedium*, by ſome μετάταρσος. *ii*, 1, 2, 3, the toes of the foote. *k*, 1, 2, 3, the ſeed bones of the foote, called *oſcicula ſeſamina*, σησαμοειδῆ.

This figure ſheweth the Sceleton of the bones & griſtles of a woman, that it may appeare all her bones are in proportion leſſer than the bones of a man. But in this figure onely thoſe parts are marked with letters wherein a woman differeth from a man in her bones and griſtles.



A, The ſagittall ſuture deſcending into the noſe, & dividing the fore head bone, which is ſometimes found in women, very rarely in men, but alwayes in Infants.

BB, the Cheſt ſomewhat depreſſed before, becauſe of the Paps.

CC, the coller bones not ſo much crooked as in men, nor intorted ſo much upward.

D, the breſt-bone perforated ſometimes with a hole much like the forme of a heart, through which veines do run outward, from the mammary veines unto the paps.

E, the griſtles of the ribs, which in women are ſomewhat bony, becauſe of the weight of the Dugs.

F, a part of the backe reflected, or bent backward above the loynes.

GG, the compaſſe of the hanchbones running more outward, for the wombe to reſt upon, when a woman is with child.

HH, the lower proceſſes of the ſhare-bones, bearing outward that the cavity marked with K, might be the larger.

I, the anterior commiſſure or conjunction of the ſhare-bones filled up with a thicke griſtle, that in the birth they might better yeeld ſomewhat for Natures neceſſity.

K, A great and large cavity circumſcribed by the bones of the coxendix and the Holy-bone. L, The Rumpe or Coccyx, curved backeward to give way in the time of the birth. M, the thigh bones by reaſon of the largeneſſe of the foreſaid cavity, have a greater diſtance betwixt them above, whence alſo it is that womens thighes are thicker than mens.

conteining are, the *Os frontis*, or Forehead bone, the Nowle-bone, the two bones of the *Synciput*, the two ſtony bones, the Wedgebone, and the Sive-like or ſpongy-bone. But the conteined are ſixe ſhut up in the cavity of the Eares, the Anvile, Hammer and ſtirrop.

The bones of the face 15.

For the bones of the face, there are ſix within or about the Orbe of the Eye, that is, on each ſide three; two bones of the Noſe, two leſſer Iaw bones, and two bigger, which are alwayes in beaſts ſeene diſtinguiſhed by a manifeſt difference, but it is ſo rare in men, that I have not found it as yet; therefore theſe onely are diſtinguiſhed by manifeſt difference, two which conteine all the upper teeth, the two inner of the palate, the two of the lower Iaw in children; And laſt of all the *Os Criſtæ*, whence the middle griſtle or partition of the noſe ariſe.

The teeth 32.

The two and thirty teeth are equally diſtributed in the upper and lower Iawes; and of theſe there be eight ſhearers, foure fanges, or Dog-teeth, and twenty Grinders.

The bone *Hyoides*

And there is another bone at the roote of the tongue called *Os Hyoides*, alwayes compoſed of three bones, ſometimes of foure.

The bones of the ſpine 34.

Now follow the bones of the Spine, or Back-bone, which are juſt foure and thirty, that is, ſeven of the necke, twelve of the Cheſt, five of the loines, ſix of the holy-bone; and foure of the rumpe. Beſides there are two bones of the throate, or Collar bones.

2 Coller-bones.
The Ribs 24.
The bones of the *Sternon* 3.

The Ribbes are twenty foure, that is, fourteene true and ten baſtard ribs. The bones of the *Sternon* or Breaſt-bone moſt frequently three, other whiles ſeven, as ſometimes in young bodyes.

The bones of the whole arme 62.

Hence comming to the Armes there are reckoned *62*, beginning with the ſhoulder-blade; as there are two ſhoulder-blades; two Arme bones; foure bones of the Cubite; that is, two Ell-bones and two Wands; ſixteene of the Wreſt, eight of the Afterwreſt, and thirty of the fingers: into this number alſo come the *Seſamoidea*, or ſeedbones, of which ſome are internall, & theſe alwayes twelve at the leaſt, although ſomtimes there may be more found, a great part of which rather merite the name of Griſtles, than bones; there are others externall if we beleeve *Sylvius*.

The bones of the whole leg. *66*.

Now remaine the bones of the Leg, which (if we reckon the *Oſſa Ilium* on each ſide three, as in yong bodies, it is fit they ſhould) they are ſixty ſix, beſides the ſeed-bones, that is to ſay, two Haunch-bones, two ſhare bones, two Huckle-bones, two thigh-bones, two Whirlbones of the knees, foure of the leg, that is two leg-bones, and two ſhin-bones. Fourteen of the Inſtep, as two ſheele, two paſterne, two boat-like, two Die, & ſix nameleſſe bones. Ten of the *Pedium* or back of the foote, that is, five in each foot; & twenty eight of the Toes: & as many ſeed-bones in the feet, as the hands enjoy. But I have thought good to adde theſe figures for the better underſtanding of what hath beene ſpoken hereof.

Chap. XLII.

An Epitome of the names and kinds of compoſure of the bones:

What the *Sceletos* is.

The bones are compoſed two manner of wayes.

2 Sorts of Articulation.
What *Diarthoſis* and *Synarthroſis* are.

3. Sorts of *Diarthroſis*.
What *Enarthroſis* is.

BEcauſe it is as nececeſſary for a Chirurgion to know the manner of ſetting & repairing broken bones, as to put them in their places when they are diſlocated, or out of joynt; but ſeeing neither of them can be underſtood when the naturall connexion of the bones is not knowne, I have thought it a worke worth my labour, breifly to ſet downe, by what and how many meanes the bones are mutually knit and faſtened together. The univerſall compoſure and ſtructure of all the bones in a mans body is called, by the Greekes; *Sceletos*. But all theſe bones are compoſed after two ſorts, that is, by *Arthron*, an Articulation or joynt, and by *Symphyſis* a naturall uniting or joyning together. There are many other kinds of both theſe ſorts. For there are two kinds of Articulation, that is *Diarthroſis* or Dearticulation, and *Synarthroſis*, or Coarticulation; which differ as thus, Dearticulation is a compoſition of the bones with a manifeſt and viſible motion; Coarticulation hath a motion of the bones, yet not ſo manifeſt, but more obſcure. But theſe two do againe admit a ſubdiviſion into other kinds. For *Diarthroſis* conteines under it *Enarthroſis*, *Arthrodia* & *Ginglymos*. Now *Enarthroſis* or Inarticulation is a kind of Dearticulation, in which a deep

Cavity receives a thicke and long head, ſuch a compoſition hath the Thigh-bone with the Huckle-bone.

Arthrodia is when a lightly engraven civity admits a ſmall and ſhort head, ſuch a connexion is that of the Arme-bone with the ſhoulder-blade; of the firſt *Vertebra* with the ſecond. The Greekes have diſtinguiſhed by proper names theſe two kinds of Cavities and heads; For they call the thicke and long head *Cephale*, that is, a Head abſolutely; but the leſſer they terme *Corone*, or *Coronon* which the Latines call *Capitulum*, a Litle-head. But they call a deepe Cavity *Cotyle*, and a ſuperficiary one *Glene*. The third ſort called *Ginglymos*, is when the bones mutually receive and are received one of another; as when there is a cavity in one bone, which receives the head of the oppoſite bone, and alſo the ſame bone hath a head which may be received in the Cavity of the oppoſite bone; ſuch a compoſure is in the Cubite and knee, that is in the connexion of the Thigh-bone.

What *Arthrodia.*

What *Cephale* is.

What *Corone* is.

What *Cotyle* is

What *Glene* is

What *Ginglymos.*

And thus much of Dearticulation and the three kinds thereof. *Synarthroſis* or Coarticulation, another kinde of juncture, hath alſo three kinds thereof * (*Gal. lib. de Oſſibus*) to wit, *Sutura*, *Gomphoſis* and *Harmonia*.

3 Kinds of *Synarthroſis.*

Suture is a compoſition of the bones after the manner of ſowing things together, example whereof appeares in the bones of the Scull. *Gomphoſis* is when one bone is faſtened in another as a pin is faſtened in a hole, after which manner the teeth are faſtened in their ſockets in both the Iawes. *Harmony* is when the bones are compoſed by the interpoſition of a ſimple line, after which manner many bones of the noſe and face are joyned together.

What a Suture is.

What *Gomphoſis* is.

What *Harmonia* is.

Hitherto we have ſpoken of the firſt conſtruction of the bones by articulation and the kinds thereof; now it followes we treat of *Symphyſis*.

Symphyſis, or Growing together as we formerly ſaid, is nothing elſe, than naturall union of the bones; ſuch union is made two manner of wayes, that is, either by interpoſition of no other thing; after which ſort in ſucceſſe of time the bones of the lower Iaw grow together, which formerly in children were maniſeſtly diſtinguiſhed; or by the mediation of ſome *Medium*; but that happens three manner of wayes, by interpoſition of three ſeverall *Media*, as firſt of a Griſtle, which kinde of union the Greeks call *Synchondroſis*, after which manner the Share-bones grow together and alſo ſome *Appendices* in young bodyes; ſecondly of a Ligament, and it is named by the Grecians *Syneuroſis*, the name of a Nerve being taken in the largeſt ſenſe, for ſometimes it is uſed for a tendon, otherwhiles for a Ligament, otherwhiles for a Nerve properly ſo called and which is the author of ſenſe and motion. But this *Symphyſis* or union hath place by *Syneuroſis*, or interpoſition of a Nerve in certaine bones of the *Sternon* and Haunch.

What *Symphyaſis* is.

Synchondroſis.

Syneuroſis.

The things ſignified by word Nerve.

Thirdly, the bones grow into one by interpoſition of fleſh, called in Greeke *Synſarcoſis*; thus the fleſh of the Gums faſtens the teeth and makes them immoveable. But if ſome be leſſe pleaſed with this diviſion, by reaſon of the obſcurities, in which it ſeemes to be involved, this following expreſſion comes into my minde, which I was firſt admoniſhed of by *German Cortin* Doctor of Phyſicke, which if you well obſerve it, is both blameleſſe and more eaſie for your underſtanding.

Synſarcoſis.

The bones, which as pillars ſuſteine the fabricke of the whole body, are either,

- Vnited mutually by *Symphyſis* or union; by which they are ſo conjoyned that there is no diſſimular, nor heterogeneous body, at leaſt which may be diſcerned, interpoſed between them. Such union appeares in the two bones of the lower Iaw at the Chin, in the bones of the *Sternon*, the Hanch with the Huckle-bones, and the Share-bones betweene themſelves; of this union there are no more kinds, for by this it cometh to paſſe, that the bones, which were more and diſtinct meet together by interpoſition of one *Medium*, to wit, a Griſtle, which now indeed is no Griſtle, but is turned into a Bone.
- or Conjoyned by that which they call *Arthrodia*, or Articulation, as when they ſo concur & are bound together, that ſome Heterogeneous ſubſtance may be noted betwixt them, but the bones thus cōpoſed are knit two manner of wayes, that is,
  - either more looſly as by *Diarthroſis*, that is a kind of Articulation not very ſtraite, as by which it might have opportunity to preforme diverſe motions: of this compoſure or Articulation of bones there are three kinds, as
    - *Enarthroſis*, when the head of a bone is wholy received in the cavity of another, & hid therein, as the Thigh-bone is joyned with the Huckle-bone.
    - *Arthrodia*, when in a lightly engraven & not much depreſſed cavity, the head of another bone is not wholy hid, but only received in part thereof; ſo that unleſſe nature had otherwiſe provided a ſufficient receptacle for the head of this bone (as by the ligamēts of the neighbouring Muſcles) it would otherwiſe have bin in perpetuall danger of diſlocation. Thus the Arme-bone is faſtened to the ſhoulder-blade.
    - *Gynglymos*, when the bones mutually receive each other, ſuch like compoſition hath the Cubit and Arme-bone.
  - or more ſtraitly, as by *ſynarthroſis*, whē the bones are more ſtraitly knit ſo that they can performe no motions in the body. Of this Articulation there are alſo 3, kinds, that is
    - *Gomphyſis*, as when one bone ſo receives another as a Pin is faſtened in the hole made by a peircer, thus the teeth are faſtened in the Iawes.
    - *Sutura*, like a Saw, or teeth of a combe, as the bones of the ſcul are mutually knit together, or as ſcales, or tiles are laid, after which manner the ſtony bones are faſtened to theſe of the *Syncipnt*. *Harmonia*, which is by interpoſition of a ſimple line, which parts bones abutting one upon another, as the bones of the Noſe.

An Epitome or briefe recitall of all the Muſcles of mans body.

As I have formerly reckoned up the bones, ſo here I have decreed to recite the muſcles of mans body. Wherefore in the face we firſt meet with the broad or skin muſcle, ariſing from the fleſhy pannicle, & covering the whole necke & almoſt all the face. Then follow 4, perteining to the upper eye-lids. In the Orbs of the eyes lye 14, that is 7, in each Orbe, of which 4 are called right, two oblique and one pyramidall. Then ſucceed 4 of the noſe, two externall on each ſide one, and two internall, theſe draw it together and the other open it. After theſe come the ten muſcles of the lower Iaw, of which two are called the *Crotaphitæ* or Temporall; two *Maſſeteres* or Grinders; two round (which ſeeme to me rather to perteine to the lips, than to this Iaw;) two litle ones hid in the mouth, ariſing from the winged proceſſe of the wedge-bone; two openers of the mouth being nervous or tendinous in their midſt. Then follow the 8 muſcles of the lips, that is, 4 of the upper and as many of the lower, ſhutting and opening the mouth. The tongue with his ten muſcles is hid as it were in the den of the mouth. Wherfore the muſcles of the whole face are 51. In the fore part of the necke are found the muſcles of the bone *Hyoides* & throtle; now 8 muſcles hold the bone *Hyoides* as equally ballanced; of which there are 2 upper ariſing from the Chin; 2 on the ſides from the proceſſe *Styloides* perforated in their midſt, through which the 2 openers of the mouth in that part nervous do paſſe; 2 ariſe from the *Sternō*, & laſtly 2 from the upper rib of the ſhoulder-blade to the *Coracoides*, which alſo in their midſt are nervous, in which place the two *Maſtoidei* lye upon them.

The 18. of the *Larinx.*

The Throtle compoſed of three griſtles hath eighteene or twenty muſcles, of which ſixe or eight are common, and twelue proper; Of the common there are two above, two below, and two at the ſides of the firſt griſtle, to which wee may adde theſe two which ſerve for the opening of the *Epiglottis*, which are alwayes found in great foure footed beaſts for to preſſe downe the *Epiglottis*.

The proper are twelue which almoſt all of them come from the ſecond griſtle, ſo to be inſerted into the firſt and third, of which ſome are before, others behinde the *Thyroides*. Beſides theſe, there are the *Maſtoidei* which bend the head.

The head is mooved by 14. Muſcles.

But in the backe part of the Necke there are twelue muſcles alſo appointed for to move the head, ſo that in all there are fourteene muſcles ſerving for the motion of the head, the two fore *Maſtoidei*, and the twelue hinde Muſcles, that is to ſay, the two *Spleny*, two *Complexi*, foure Right, and ſo many oblique which are very ſhort, ſo that they paſſe not beyond the firſt and ſecond *Vertebra*.

The 8. Muſcles of the necke.

The Necke hath eight Muſcles, of which two are called the long, lying before upon the bodyes of the *Vertebræ*; the two *Scaleni* which are at the ſides; the two *Spinati* which runne alongſt the Spine; the two tranſverſe which goe to the tranſverſe proceſſes of the Cheſt.

The Muſcles of the cheſt 18.

The Cheſt hath 81 Muſcles, of which ſome are on the fore part, ſome on the hinde, others on the ſides; they are all combined or coupled together except the Midriffe. Now of theſe there are the two *Subclavÿ*; the two great Saw-muſcles which proceed from the baſis of the ſhoulder-blade; the foure litle *Rhomboides* or ſquare muſcles, that is, two above and two below; the two *Sacrolumbi*; the two binders of the Griſtles within the Cheſt.

Beſides there are twenty and two externall and as many internall Intercoſtall muſcles, twenty foure *Intercartilaginei*, that is, twelue externall and as many internall; ſo that the Intercoſtall, and *Intercartilaginei* are 68, which with the twelue before mentioned make the number of 80 Muſcles. Adde to theſe the Midriffe being without an aſſociate, and you ſhall have the number formerly mentioned, to wit, 81. But alſo if you will adde to theſe the Muſcles of the lower belly, I will not much gainſay it, becauſe by accident they helpe inſpiration and exſpiration.

The 8. muſcles of the lower belly.

Wherefore of the eight muſcles of the *Epigaſtrium*, there are foure Oblique, of which two are deſcendent and ſo many aſcendent; two right, to which you may adde the two Aſſiſting or Pyramidall muſcles which come from the ſhare-bone, if it pleaſe you to ſeparate them from the head of the right muſcles.

The 6. or 8. of the loines.

There are ſixe or eight Muſcles of the Loynes, of which two bend the loines which are the triangular; the two *Semiſpinati*; two *Sacri*; two are in the midſt of the backe, which for that cauſe we may call the *Rachitæ* or Chine-muſcles. Now, that hereafter we may ſeverally and diſtinctly ſet downe the muſcles of the extreme parts, will we come to the privities.

The two Cremaſters of the Teſticles.

Where for the uſe of the Teſticles there are two Muſcles called the *Cremaſteres*, or Hanging Muſcles. At the roote of the yard, or *Perinæum*, there are foure others, partly for the commodious paſſing of the urine and ſeed, and partly for erecting the yarde. The *Sphincter* Muſcle is ſeated at the Necke of the Bladder.

The three of the fundament.

At the end of the right Gut are three Muſcles, two *Levatores Ani*, or Lifters up of the fundament, and one *Sphincter* or ſhutting Muſcle. Now let us proſequute the Muſcles of the Extremities, or Limbs. But it will be ſufficient to mention onely the Muſcles of one ſide, becauſe ſeeing theſe parts of the body are double, thoſe things which are ſaid of the one may be applyed to the other.

The muſcles of the Arme in generall 32.

Wherefore the muſcles of the Arme, beginning with theſe of the ſhoulder-blade, at the leaſt, are 42. for there are 4 of the ſhoulder-blade: of the Arme properly or particularly ſo called, ſeven or eight; and there are three, foure, or five proper muſcles of the Cubite, that is, appointed for the performance of the motions thereof; in the inner part of the Cubite are ſeven, and as many in the outer; but thoſe of the hand are reckoned thirteene at the leaſt.

The fourth of the ſhoulder-blade are the *TrapeZius* reſembling a Monkes Cowle, which moves it upwards and downewards, and drawes it backwards; the ſecond is the *Levator*, or Liſter-up; the third the great *Rhomboides* lying under the *Trapezius*. The fourth, the leſſer ſaw muſcle which is inſerted into the *Coracoides*. The arme is moved forwards, backwards, upwards, downewards and circularly.

The Pectorall muſcle ariſing from the Clavicle, Breaſt-bone and neighbouring ribs, drawes it forwards; the *Humilis* or low-muſcle comming from the lower rib of the ſhoulder-blade drawes it backwards; the *Deltoides* upwards; and the *Latiſſimus* downewards, and ſomewhat backe-wards. But the three ſeated about the ſhoulder-blade move it about, or circularly.

The *Epomis* or *Scapularis* upwards; the *Superſcapularis*, which may ſeeme two, backwards and downewards; the *Subſcapularis* which is in the Cavitie of the ſhoulder blade, forewards, ſo that by a certaine viciſſitude and ſucceſſion of action they move it circularly. Two muſcles bend the Cubite, the one named *Biceps* or Two-headed, and the other *Brachiæus* or the Arme-muſcle; but one, two, or three muſcles extend it; for if you have reſpect to the originall, this muſcle hath two or three heads, but one onely inſertion.

In the inſide of the Cubite are ſeven muſcles, one *Palmaris*, two wreſt-benders; two *pronatores*, one ſquare, another in ſome ſort round; two finger-benders, and one *Abductor* or Drawer aſide. Theſe fourteene internall and externall muſcles of the Cubite, doe not indeed move the Cubite, but onely ſeated there move the wande and with it the hand. Theſe are the thirteene Muſcles of the hand; the *Thenar* which may not only be divided into two, but into ſixe, not only by the diverſe actions it performes, but alſo by the branches divided by a manifeſt ſpace betweene them; the ſecond is called the *Hypothenar*, which lyes under the litle finger, as the *Thenar* doth under the Thumbe; the third is the *Abductor of* the Thumbe; then follow the foure *Lumbrici* and ſixe *Interoſſes*, although eight may be obſerved.

The muſcles of the legge in generall 50.

The whole Legge hath at the leaſt 50. Muſcles, for wee reckon there are fourteene muſcles in the thigh; there are eleven made for the uſe of the Legge; there are nine ſeated in the Legge, three before and ſixe behinde which ſerve for the uſe of the foot and toes; in the foote are ſeated ſixteene. Therefore of the foureteene muſcles ſerving the thigh two bend it, one called the *Lumbaris*, the other ariſing from the cavity of the Hanch-bone; but the three which make the Buttocks and the *Triceps* or Three-headed muſcle, (which if you pleaſe, you may divide into three) extend it. Beſides theſe the 4. twin muſcles, and two *Obturators*, of which the one is internall, the other externall, turne the Thigh about. The Legge hath eleven, that is, the Long, the Membranous, the foure *Poſtici* or Hinde muſcles (three of which come from the Huckle-bone, but the other from the commiſſure of the Share-bone) the Right, the two Vaſte, the *Crureus* or Legge-muſcle, and the *Poplitæus*, or Ham-muſcle. Theſe ſeated in the leg for the uſe of the foote and toes are three fore and ſixe hinde muſcles: two of the fore bend the foote, one of which is called the *Tibiæus anticus*, the other *Peronæus*, which you may divide into two. The third the bender of the toes, although it alſo partly bend the foote, to which alſo the bender of the Thumbe may be revoked. One of the hinde is the Toe-bender, others extend the foote, and are in this order; Two twins, one *Plantaris*, one *Soleus*, one *Tibiæus poſticus* and the great bender of the Toes, to which may be revoked the bender of the Thumbe. Of the ſixteene ſeated in the foote, one is above, ſeated on the backe of the foote, which wee call the *Abductor* of the Toes; another in the ſole of the foote, to wit, the litle bender of the Toes, which goes to the ſecond joynte of the Toes alongſt the inſide of the foote; the other lends his helpe to the great Toe, which you may call the *Abductor* of the Thumbe; another is ſeated on the outſide for the uſe of the litle Toe. To theſe are added the foure *Lumbrici*, beſides the eight *Interoſſes*; or if you had rather, ten. And thus much may ſuffice for the enumeration of the muſcles.

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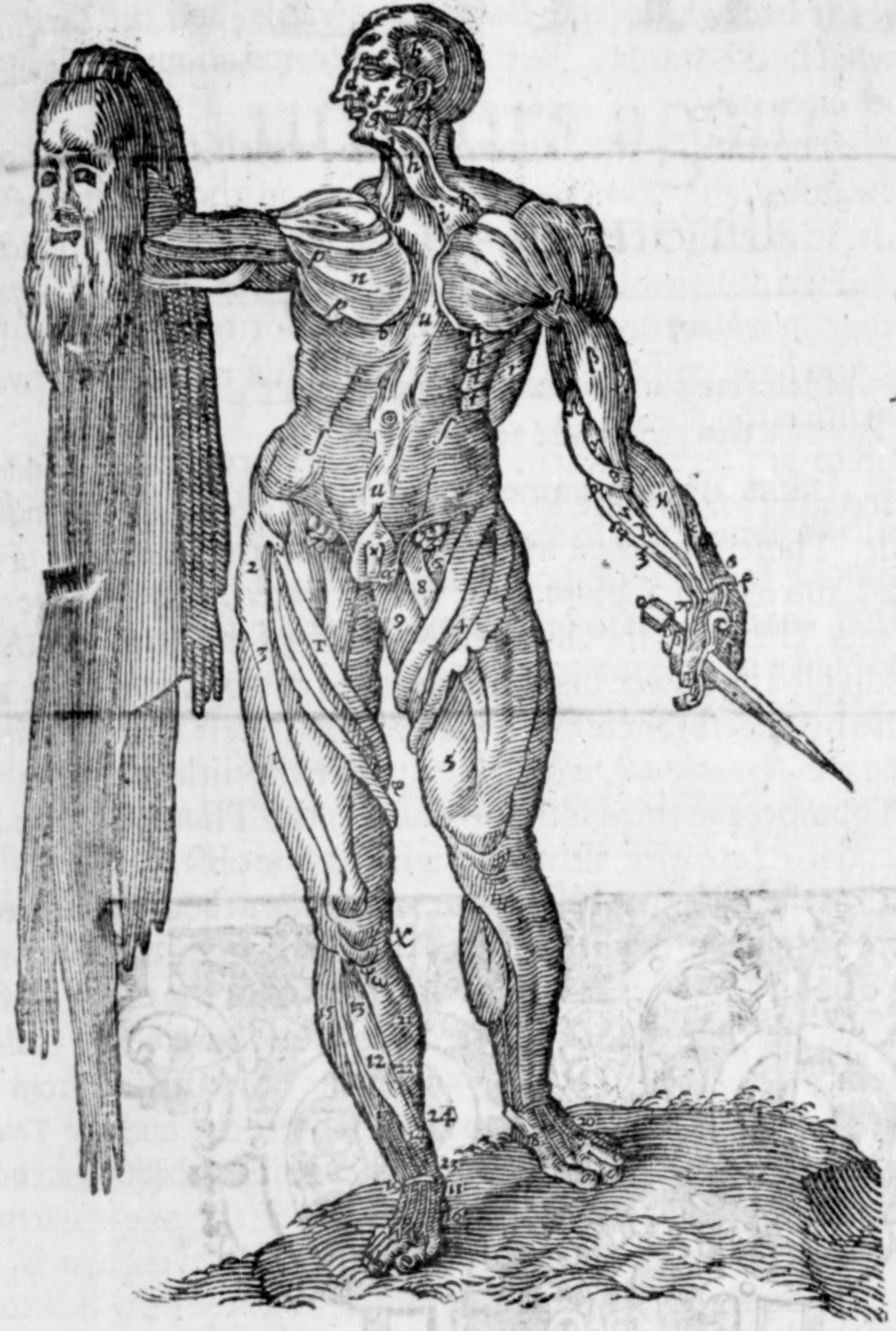
1, the ſixt muſcle o
4, the ninth muſcle
and ſeventh of the m

The Figure of the Muſcles when the skin with its veines, the fat, and all the fleſhy membrane are taken away, that part of the fleſhy membrane excepted, which takes upon it the nature of a muſcle, as being conjoyned with the muſcles.



a, the muſcle of the fore-head.
b, the temporall muſcle.
c, the muſcle ſhutting the eye-lid.
d, the muſcle opening the wings of the noſe.
e, the fore part of the yoake-bone.
f, the muſcle of the upper lip tending to the noſe.
g, the beginning of the maſſeter or grinding muſcle.
h, the broad muſcle conſiſting of a fleſhy membrane.
i, *k*, the beginning therof which riſes immediatly from the coller-bone & the top of the ſhoulder.
l, that part therof which bends forwards to *l*.
m, the muſcle which lifts up the arme.
n, the pectorall muſcle.
o, the membranous part of this muſcle which is joyned to the nervous part of the firſt muſcle of the *Abdomen* or belly. *q*, *q*, the fleſhy portion thereof, from the 6. and 7. ribs, and the inſertion thereof. *r* the muſcle drawing down the arme. *ſ*, the oblique deſcending muſcle of the lower belly. *t*, *t*, *t*, the inſertion of the greater ſaw muſcle. u u. the *linea alba* or white line, at which the two oblique deſcendent muſcles meet, covering the whole belly. *x*, the yard, the skinne being taken away. *y*, the veſſels of ſeed. α, the teſticles wrapped in the fleſhy membrane. β, the fore muſcle bending the cubite. γ, γ, the hinde muſcle bending the cubite. δ, the muſcle extending the cubite. ε, the two-headed muſcle extending the wreſt. ε, the muſcle producing the broad tendon on the backe of the hand. ζ, his tendon. η, the muſcle turning up the Wand. θ, the upper muſcle flatting the Wand. ι, the ſecond of the arme-benders, whoſe beginning is κ, and tendon λ. ο, a portion of the muſcle, whereof one part yeelds tendons to the wreſt, the other to the thumbe. π, the fleſhleſſe articulation of the thumbe. ρ, a muſcle inſerted into the wreſt, lying neere to the following muſcle. σ, a muſcle devided into two tendons, the one whereof is inſerted into the firſt joint of the thumbe, the other into the following. τ, the firſt muſcle of the thigh, whoſe head is at υ, and tendon at φ, and inſertion at χ. ψ, the end of the ſecond muſcle of the thigh. ω the end of the third muſcle of the thigh. 1, the ſixt muſcle of the legge; his beginning at 2. almoſt wholy membranous at 3. 4, the ninth muſcle of the legge. 5, the eight of the legge. 6, a portion of the ſixth and ſeventh of the thigh. 7, the Glandules of the groines. 8, the eight of the thigh.

9, the ſecond of the legge. 11, the innermoſt of the anckle. 12, the ſixth muſcle of the foote, his originall 13. end 14. 15, the ſeventh of the foote. 16, the tendon of the muſcle lifting up the great toe. 17, the muſcles extending the foure other toes. 18, the abductor of the great toe. 19, a tranſverſe ligament. 20, a tendon of the ninth muſcle of the foote. 21, the firſt muſcle. 22, the fourth muſcle of the foote. 23, the tendon of the third muſcle. 24. a muſcle bending the third bone of the foure leſſer toes.

THE SEVENTH BOOK Of Tumours againſt Nature in Generall.

Chap. I.

What a Tumour againſt Nature, vulgarly called an Impoſtume, is, and what be the differences thereof.

AN Impoſtume, commonly ſo called, is an affect againſt nature, compoſed and made of three kinds of diſeaſes, Diſtemperature, ill Conformation, and Solution of Continuitie, concurring to the hindering or hurting of the Action. An humor, or any other matter, anſwering in proportion to a humor, aboliſhing, weakening, or depraving of the office or function of that part or body in which it reſides, cauſeth it.

What an Impoſtume vulgarly ſo called is.

The materiall cauſes of Impoſtumes, or unnaturall tumors.

The differences of Impoſtumes are commonly drawne from five things; quantitie, matter, accidents, the nature of the part, which they affect or poſſeſſe; and laſtly, their efficient cauſes. I have thought good for the better underſtanding of them, to deſcribe them in this following Scheme.

A Table of the differences of Tumors.

The differences of *Impoſtumes* are drawne principally from five things, that is,	from their quantity, by reaſon whereof *Impoſtumos* are called --	Great, which are comprehended under the generall name of Phlegmons, which happen in the fleſhy parts, by *Galen, Lib de tumor. contra naauram, & lib. 2, ad Glauconem.*		
		Indifferent, or of the middle ſort, as Fellons.		
		Small, as thoſe which *Avicen* calls *Bothores*, i. Puſhes and Puſtules, all kinde of Scabs and Leproſies, and laſtly, all ſmall breakings out.		
	from their accidents, as	Colour, from whence Impoſtumes are named white, red, pale, yellow, blew, or blacke, and ſo of any other colour.		
		Paine, hardneſſe, ſoftneſſe, and ſuch like, from whence they are ſaid to be painefull, not painefull, hard, ſoft, and ſo of the reſt.		
	from the matter, of which they are cauſed and made, which is either	Naturall or	Hot, and that either,	Sanguine, from whence a true *Phlegmon*.
				Cholerick, from whence a true *Eryſipelas*.
			Cold & that either	Phlegmatiek, frō whence a true *Oëdema*.
				Melācolick frō whēce a perfect *Scyrrhus*.
		Not naturall, which hath, exceeded the limits of its naturall goodneſſe, from whence illegitimate tumors, therefore	of a ſanguine humor,	Carbunckles, Gangrenes, eating ulcers, Sphaceles are cauſed.
			of a cholerick humor,	Of the groſſer, the eating *Herpes*, of the ſubtiler the *Herpes miliaris* is made.
			of a phlegmatick humor,	Watery and flatulent Impoſtumes, the Kings-evill, knots & all phlegmatick ſwellings, & excreſcenſes.
			of a melācholick humor,	The exquiſite or perfect *Scyrrhus*, hardneſſes and all ſorts of cancerous Tumors.
	From the condition and nature of the parts which they poſſeſſe, from whence the *Ophthalmia*, is a Phlegmon of the eyes. *Parotis* a tumor neere the eares. *Paronychia* or a whitlow at the roots of the nailes; and ſo of the reſt.			
	From the efficient cauſes, or rather the manner of doing. For ſome impoſtumes are ſaid to be made by defluxions, others by congeſtion, thoſe are commonly hot, & the other cōmonly cold, as it ſhal more manifeſtly appeare by the following chapter.			

Chap.

CHAP. II.

Of the generall cauſes of Tumors.

After what manner tumours againſt nature are chiefely made.

THere are two generall cauſes of Impoſtumes, Fluxion, and Congeſtion. Defluxions are occaſioned, either by the part ſending, or receiving; the part ſending diſcharges it ſelfe of the humors, becauſe the expulſive facultie reſident in that part is provoked to expell them, moved thereto, either by the troubleſomeneſſe of their quantity or quality. The part receiving drawes, and receives occaſion of heat, paine, weakeneſſe (whether naturall, or accidentall) openneſſe of the paſſages, and lower ſituation.

Three cauſes of heat.

The cauſes of heat, in what part ſoever it be, are commonly three, as all immoderate motion (under which frictions are alſo contained,) externall heat, either from fire, or ſun, and the uſe of acride meates and medicines.

Foure cauſes of paine.

The cauſes of paine are foure, the firſt, is a ſodaine and violent invaſion of ſome untemperate thing, by meanes of the foure firſt qualities; the ſecond is ſolution of continuitie, by a wound, luxation, fracture, contuſion or diſtention; the third, is the exquiſit ſenſe of the part, for you feele no paine in cutting a bone, or expoſing it to cold or heate; the fourth is, the attention, as it were of the animall faculty, for the minde diverted from the actuall cauſe of paine, is leſſe troubled, or ſenſible of it.

Two cauſes of weakneſſe.

A part is weake, either by its nature, or by ſome accident; by its nature as the Glandules and the Emunctories of the principall parts; by accident, as if ſome diſtemper, bitter paine, or great defluxion have ſeazed upon it, and wearied it, for ſo the ſtrength is weakened, and the paſſages dilated. And the lowneſſe of ſite yeelds opportunity for the falling downe of humors.

Two cauſes of congeſtion.

The cauſes of congeſtion are two principally, as the weakeneſſe of the concoctive facultie, which reſides in the part, (by which the aſſimulation into the ſubſtance of the part of the nouriſhment flowing to it is fruſtrated) and the weakeneſſe of the expulſive faculty; for whileſt the part cannot expell ſuperfluities, their quantity continually encreaſes.

And thus oftentimes cold impoſtumes have their originall from a groſſe and tough humor, and ſo are more difficult to cure.

Laſtly, all the cauſes of Impoſtumes may be reduced to three, that is, the primitive, or externall; the antecedent, or internall; and the conjuncte, or containing, as we will hereafter treat more at large.

CHAP. III.

The ſignes of Impoſtumes or Tumors in generall.

The principall ſignes of tumors are drawne from the eſſence of the part.

BEfore wee undertake the cure of Tumors, it is expedient to know their kindes and differences, which knowledge muſt be drawne from their proper ſignes, the ſame way, as in other diſeaſes. But becauſe the proper and principall ſignes of tumors are drawne from the eſſence of the part they poſſeſſe, we muſt firſt know the parts, and then conſider what their eſſence and compoſition are.

We are taught both, by skill in Anatomy, and the obſervation of the deprived function, eſpecially when the affected part is one of thoſe which lie hid in the body; for we know whether or no, the externall parts are affected with a tumor againſt nature, by comparing that with his naturall which is contrary. For comparing the ſound part with the diſeaſed, wee ſhall eaſily judge whether it be ſwollen, or no.

But becauſe it is not ſufficient for a Chirurgion onely to know theſe generall ſignes (which are knowne even to the vulgar) he muſt attentively obſerve ſuch as are more proper and nere. And theſe are drawne from the difference of the matter and humors of which the tumors conſiſt.

Lib. 2. ad Glauc. & 13. method.

For this *Galen* teaches, that all differences of tumors ariſe from the nature and condition of the matter which flowes downe and generates the tumor; alſo they are knowne by ſuch accidents as happen to them, as colour, heat, hardneſſe, ſoftneſſe, paine, tenſion, reſiſtance.

The proper ſignes of a ſanguine tumor, of a plegmaticke, of a melancholick, of a cholerick.

Wherefore paine, heate, redneſſe, and tenſion indicate a ſanguine humor; coldneſſe, ſoftneſſe, and no great paine, phlegme; tenſion, hardneſſe, the livide colour of the part, and a pricking paine by fits, melancholy; and yellowiſh and pale colour, biting paine without hardneſſe of the part, choler.

The knowledge of tumors by their motion and exacerbation.

And beſides, Impoſtumes have their periods and exacerbations following the nature and motion of the humors of which they are generated. Wherefore by the motion and fits it will be no difficult matter to know the kinde of the humor; for as in the Spring, ſo in the morning the bloud is in motion; as in the Summer, ſo in the middeſt of the day, choler; as in Autumne, ſo in the evening, melancholy; as in Winter, ſo on the night the exacerbations of phlegme are moſt predominante. For *Hippocrates* and *Galen* teach, that the yeare hath circuits of diſeaſes, ſo that the ſame proportion of the exceſſe and motion of humors which is in the foure ſeaſons of the yeare, is alſo in the foure quarters of each day.

Lib. 2. Epidem.

Impoſtumes which are curable have foure times, their beginning, increaſe, ſtate, and declination, and we muſt alter our medicines, according to the varietie of theſe times. We know the beginning by the firſt ſwelling, of the part; The increaſe when the ſwelling, paine, and other accidents do manifeſtly encreaſe, and enlarge themſelves; the ſtate, when the foreſaid ſymptoms increaſe no more, but each of them, becauſe at their height, remaine in their ſtate immoveable, unleſſe the very matter of the tumor degenerate, and change it ſelfe into another kinde of humor; The declination, when the ſwelling, paine, feaver, reſtleſneſſe are leſſened. And from hence the Chirurgion may preſage what the end of the tumor may be; for tumors are commonly terminated foure manner of wayes, if ſo be that the motion of the humors cauſing them be not intercepted, or they without ſome manifeſt cauſe, doe flow backe into the body.

The beginning of an impoſtume. The encreaſe. The State.

Therefore firſt they are terminated by inſenſible tranſpiration, or reſolution; ſecondly, by ſuppuration when the matter is digeſted and ripened; thirdly, by induration when it degenerates into a Scyrrhus, the thinner part of the humor being diſſolved; the fourth, which is the worſt of all, by a corruption and Gangrene of the part, which is, when overcome with the violence, or the abundance or quality of the humor, or both, it comes to that diſtemper, that it looſes its proper action.

It is beſt to terminate a tumor by reſolution; and the worſt by corruption; ſuppuration and induration are betweene both, although that is far better than this. The ſignes by which the Chirurgions may preſage that an Impoſtume may be terminated by reſolving, are the remiſſion, or ſlacking of the ſwelling, paine, pulſation, tenſion, heat, and all other accidents, and the unaccuſtomed livelineſſe and itching of the part; and hot Impoſtumes are commonly thus terminated, becauſe the hot humor is eaſily reſolved, by reaſon of its ſubtilty.

The ſignes of a tumor to be terminated by reſolution.

Signes of ſuppuration are the intenſion or encreaſe of paine, heat, ſwelling, pulſation, and the feaver; for according to *Hippocrates*, paine and the feaver are greater when the matter is ſuppurating, then whan it is ſuppurated.

The ſignes of ſuppuration.

The Chirurgion muſt be very attentive to know and obſerve when ſuppuration is made; for the purulent matter oft times lies hid (as *Hippocrates* ſaith) by reaſon of the thickneſſe of the part lying above, or over it.

The ſignes and cauſes of a tumor terminated in a *Scyrrhus*.

The ſignes of an Impoſtume degenerating into a Scyrrhus hardneſſe, are the diminution of the tumor, and hardneſſe remaining in the part. The cauſes of the hardneſſe not going away with the ſwelling, are the weakeneſſe of nature, the groſneſſe and toughneſſe of the humor, and unskilfulneſſe of the Chirurgion, who by too long uſing reſolving things hath occaſioned, that the more ſubtile part of the humor being diſſolved, the reſt of the groſſer nature like earthy dreggs remaines concrete in the part. For ſo potters veſſels dried in the Sunne grow hard. But the unskilfull Chirurgion may occaſion a Scyrrhous hardneſſe by another meanes, as by condenſating the skinne, and incraſſating the humors by too much uſe of repercuſſives. But you may perceive an Impoſtume to degenerate into a Gangrene thus, if the accidents of heat, redneſſe, pulſation and tenſion ſhall be more intenſe, than they are wont to be in ſuppuration; if the paine preſently ceaſe without any manifeſt cauſe, if the part waxe livide or blacke; and laſtly, if it ſtinke.

The ſignes of a Gangrene at hand.

But we ſhall treate of this more at large when we come to treate of the Gangrene and *Sphacelus*. A ſodaine diminution of the tumor, and that without manifeſt cauſe, is a ſigne of the matter fallen backe, and turned into the body againe, which may be occaſioned by the immoderate uſe of refrigerating thinge. And ſometimes much flatulencie mixed with the matter, although there be no fault in thoſe things which were applied.

Of diſappearance of a tumor, and the ſignes thereof.

Feavers and many other maligne Symptomes, as ſwoundings and convulſion, by tranſlation of the matter to the noble parts, follow this flowing backe of the humor into the body.

Chap. IIII.

Of the Prognoſticks in Impoſtumes.

TVmors ariſing from a melancholy, phlegmaticke, groſſe, tough, or viſcous humor, aske a longer time for their cure, than thoſe which are of bloud or choler. And they are more difficultly cured which are of humors not naturall, than thoſe which are of humors yet contained in the bounds of nature.

Cold tumors require a longer cure.

For thoſe humors which are rebellious, offend rather in qualitie, than in quantitie, and undergoe the divers formes of things diſſenting from nature, which are joyned by no ſimilitude or affinitie with things naturall, as ſuet, poultis, hony, the dregs of oile, and wine; yea, and of ſolid bodies, as ſtone, ſand, coale, ſtrawes, and ſometimes of living things, as Wormes, Serpents, and the like monſters.

Tumors made of matter not naturall, are more difficultly cured.

The tumors which poſſeſſe the inner parts, and noble entrailes, are more dangerous and deadly, as alſo thoſe which are in the joints, or neere to them. And theſe tumors which ſeaze upon great veſſels, as veines, arteries, and nerves, for feare of great effuſion of bloud, waſting of the ſpirits and convulſion. So impoſtumes of a monſtrous bigneſſe are often deadly, by reaſon of the great reſolution of the ſpirits cauſed by their opening. Thoſe which degenerate into a *Scyrrhus* are of long continuance and hard to cure, as alſo thoſe which are in hydropicke, leprous, ſcabby and corrupt bodies, for they often turne into maligne and ill conditioned vulcers.

Hippo. Aph. 8. ſect. 6.

Chap. V.

Of the generall cure of Tumors againſt Nature.

THere be three things to be obſerved in cure of impoſtumes. The firſt is the eſſence thereof; the ſecond the quality of the humor cauſing the impoſtume; the third the temper of the part affected. The firſt indication drawne from the eſſence, that is, from the greatneſſe, or ſmallneſſe of the tumor, varies the manner of curing, for the medicines muſt be increaſed or diminiſhed according to the greatneſſe of the tumor. The ſecond, taken from the nature of the humor alſo changes our counſell, for a *Phlegmon* muſt be otherwiſe cured than an *Eryſypelas* and an *Oedema* than a *Scyrrhus*, and a ſimple tumor, otherwiſe than a compound. And alſo you muſt cure after another manner a tumor comming of an humor not naturall, than that which is of a naturall humor, and otherwiſe that which is made by congeſtion,

What muſt be conſidered in undertaking the cure of tumors.

geſtion, than that which is made by defluxion. The third Indication is taken from the part in which the tumor reſides; by the nature of the part wee underſtand its temperature, conformation, ſite, faculty, and function.

What we muſt underſtand by the nature of the part.

The temperature indicates that ſome medicines are convenient for the fleſhy parts, as thoſe which are more moiſt; others for the nervous, as more drie; for you muſt apply ſome things to the eye, and others to the throate; one ſort of things to theſe parts which by reaſon of their raritie are eaſily ſubject to defluxion, another to thoſe parts which by their denſity are not obnoxious to it.

But we muſt have good regard to the ſite of the part, as if it have any connexion with the great veſſels, and if it be fit to powre forth the matter and humor when it is ſuppurated.

Galen by the name of faculty underſtands the uſe and ſenſe of the part. This hath a manifold indication in curing, for ſome parts are principall, as the Braine, Heart, and Liuer; for their vertue is communicated to the whole body, by the nerves, arteries, and veines.

What we muſt underſtand by the faculty of the part.

Others truly are not principall, but yet ſo neceſſary that none can live without them, as the Stomacke. Some are endued with a moſt quicke ſence, as the eye, the membranes, nerves, and tendons; wherefore they cannot endure acrid and biting medicines. Having called to minde theſe indications, the indication will be perfected by theſe three following intentions, as if we conſider the humor flowing downe, or which is ready to flow; the conjunct matter, that is, the humor impact in the part; the correction of accidents; yet ſo that we alwayes have care of that which is moſt urgent and of the cauſe. Therefore firſt repercuſſives muſt be applied for the antecedent matter, ſtrong or weake, having regard to the tumor as it is then, onely excepting ſixe conditions of Tumors; the firſt is, if the matter of the Tumor be venenate: the ſecond, if it be a criticall abſceſſe: the third, if the defluxion be neare the noble parts: the fourth, if the matter be groſſe, tough, and viſcide: the fifth, when the matter lies farre in, that is, flowes by the veines which lies more deepe: the ſixth, when it lies in the Gandules. But if the whole body be plethoricke, a convenient diet, purging, and Phlebotomie muſt be appointed, frictions and bathes muſt be uſed. Ill humors are amended by diet and purging. If the weakeneſſe of the part receiving draw on a defluxion, it muſt be ſtrengthened.

What we muſt conſider in performing the cure.

What things diſſwade us from uſing repercuſſives.

If the part be inferiour in its ſite, let the patient be ſo ſeated, or layed, that the part receiving, as much as may be, may be the higher. If paine be the cauſe of defluxion, we muſt aſſwage it by things mitigating it. If the thinneſſe, or lightneſſe of the humor cauſe defluxion, it muſt be inſpiſſate by meats and medicines. But for the matter conteined in the part, becauſe it is againſt nature, it requires to be evacuate by reſolving things, as Cataplaſmes, ointments, fomentations, cupping glaſſes; or by evacuation, as by ſcarifying, or by ſuppurating things, as by ripening and opening the Impoſtume. Laſty, for the conjunct accidents, as the Feaver, paine and ſuch like, they muſt be mitigated by aſſwaging, mollifying and malaxing medicines, as I ſhall ſhew more at large hereafter.

CHAP. VI.

Of the foure principall and generall Tumors, and of other Impoſtumes which may be reduced to them.

THe principall and cheife Tumors which the abundance of humors generate are foure, A *Phlegmon*, *Eryſipelas*, *Oedema* and *Scyrrhus*: innumerable others may be reduced to theſe, diſtinguiſhed by divers names according to the various condition of the efficient cauſe and parts receiving. Wherfore a *Phygethlum*, *Phyma*, Fellon, Carbuncle, inflammation of the eyes, Squincy, *Bubo*, & laſtly all ſorts of hot and moiſt tumors may be reduced to a Phlegmon. *The Herpes miliaris*, the eating *Herpes*, Ringwormes and Tetters and all impoſtumes brought

What tumors may be reduced to a Phlegmon.

Which to an *Eryſipelas*.

Which to an Oëdema.

forth by choler, are contained under an *Eryſipelas*. *Atheromata*, *Steatomata*, *Melicerides*, the *Teſtudo*, or *Talpa*, *Ganglion*, Knots, Kings-evill, Wens, watery Ruptures, the *Aſcites* and *Leucophlegmatia* may be reduced to an *Oëdema*, as alſo all flatulent tumors, which the abundance of corrupt Phlegme produces.

Which to a *Scyrhus.*

In the kindred of the *Scyrrhus* are reckoned a Cancer, Leproſie, Warts, Corns, a *Thymus*, a *Varix*, *Morphew*, black and white, and other Impoſtumes ariſing from a melancholy humor.

Now wee will treate of theſe Tumors in particular beginning with a Phlegmon.

Chap. VII.

Of a Phlegmon.

What a true Phlegmon is.

A Phlegmon is a generall name for all Impoſtumes, which the abundance of inflamed bloud produces. That is called a true Phlegmon, which is made of laudable bloud, offending onely in quantity. But a baſtard Phlegmon, or a Phlegmonous Impoſtume hath ſome other, and proper name; as a Carbuncle, Fellon, Gangrene, Sphacel, and the like maligne Puſtules. So when there is a confluxe of diverſe humors into one tumor, divers kinds of phlegmonous Impoſtumes called by diverſe names, according to the more abundant humor, ariſe; as if a ſmall portion of phlegme ſhall be mixed with a greater quantity of bloud, it ſhall be called an *Oëdematous Phlegmon*; but if on the contrary, the quantity of phlegme be the greater, it ſhall be named a phlegmonous *Oëdema*, and ſo of the reſt; alwayes naming the tumor, from that which is moſt predominant in it.

A Phlegmon one thing, and a Phlegmonous tumor another.

Therefore we muſt obſerve that all differences of ſuch tumors ariſe from that, either becauſe the bloud cauſing it offends onely in quantity; which if it doe, it cauſes that tumor which is properly called a Phlegmon; if in quality, it makes a phlegmonous tumor, becauſe the matter thereof is much departed from the goodneſſe of bloud.

But bloud is ſaid to offend in quantity, either by admixture of ſome other matter, as Phlegme, Choler, or melancholy, from whence proceedes *Oëdematous*, *Eryſipelous* and *Scyrrhous* Phlegmons; or by corruption of its proper ſubſtance from whence Carbuncles, and all kindes of Gangrens; or by concretion, and when nature is diſappointed of its attempted and hoped for ſuppuration, either by default of the aire, or patient, or by the error of the phyſition; and hence oft times happen *Atheroma's*, *Steatoma's*, and *Melicerides*. Although theſe things be ſet downe by the ancients, of the ſimple and ſimular matter of the true Phlegmon; yet you muſt know, that in truth there is no impoſtume, whoſe matter exquiſitely ſhewes the nature of one, and that ſimple humor without all admixture of any other matter; for all humors are mixed together with the bloud, yet from the plenty of bloud prodominating, they are called Sanguine, as if they were of bloud alone.

Wherefore if any Tumors reſemble the nature of one ſimple humor, truely they are not of any naturall humor, but from ſome humor which is corrupt, vitiated and offending in quality; for ſo bloud by aduſtion degenerates into choler and melancholy.

Gal. lib. de tumoribus, & 2. ad Glauc.

Therefore a true Phlegmon is defined by *Galen*; A tumor againſt nature, of laudable bloud flowing into any part in too great a quantity.

Hippoc. lib. de vuln: cap. Gal. lib. de tumor. præter naturam.

This tumor though moſt commonly it be in the fleſh, yet ſometimes it happens in the bones, as *Hippocrates* and *Galen* witneſſe.

A Phlegmon is made and generated thus, when bloud flowes into any part, in too great a quantity; firſt the greater veines and arteries of the affected part are filled, then the middle, & laſtly, the ſmalleſt and capillary; ſo from thoſe thus diſtended, the bloud ſweats out of the pores and ſmal paſſages like dew; and with this the void ſpaces which are between the ſimular parts are firſt filled, & then with the ſame bloud all the adjacent parts are filled, but eſpecially the fleſh, as that which is moſt fit to receive defluxions, by reaſon of the ſpongious rarity of its ſubſtance; but then the nerves, tendons, membranes, and ligaments, are likewiſe ſtuffed full; whereupon a Tumor muſt neceſſarily follow, by reaſon of the repletion which exceeds the bounds of nature; and from hence alſo are tenſion and reſiſtance; and paine alſo happens at the ſame time, both by reaſon of the tenſion and preternaturall heate.

The cauſe of a beating paine in a Phlegmon

And there is a manifeſt pulſation in the part, ſpecially whileſt it ſuppurates, becauſe the veines, arteries, and nerves, are much pained, being they are not onely heated within by the influxe of the fervide humor, but preſſed without by the adjacent parts. Therefore ſeeing the paine comes to all the foreſaid parts becauſe they are too immoderately heated and preſſed, the arteries which are in the perpetuall motion of their *Syſtole & diaſtole*, whileſt they are dilated, ſtrike upon the other inflamed parts, whereupon proceeds that beating paine.

Hereunto adde, the Arteries then filled with more copious and hot bloud, have greater neede to ſeeke refrigeration by drawing in the encompaſſing Aire; wherefore they muſt, as of neceſſitie, have a conflict with the neighbouring parts which are ſwollen and pained. Therefore from hence is that pulſation in a Phlegmon which is defined by *Galen*, an agitation of the arteries, painefull, and ſenſible to the Patient himſelfe; for otherwiſe as long as we are in health, we doe not perceive the pulſation of the arteries.

Comm. ad Aph. 21. ſect. 7.

Wherefore theſe two cauſes of pulſation, or a pulſificke paine in a phlegmon are worthy to be obſerved, that is, the heate and aboundance of bloud, contained in the veſſels and arteries (which more frequently than their wont incite the arteries to motion, that is, to their *Syſtole* and *Diaſtole*) and the compreſſion and ſtreightning of the ſaid arteries, by reaſon of the repletion and diſtention of the adjacent parts, by whoſe occaſion the parts afflicted and beaten by the trembling and frequent pulſation of arteries are in paine.

Another kinde of Pulſation in a phlegmon.

Hence they commonly ſay, that in the part affected with a Phlegmon, they feele as it were the ſenſe or ſtroke of a Mallet or Hammer ſmiting upon it. But alſo beſides this pulſation of the arteries, there is, as it were another pulſation with itching from the humors whilſt they putrefie and ſuppurate, by the permixtion, motion, and agitation of vapours thereupon ariſing.

The cauſe of heate in a Phlegmon is bloud, which whileſt it flowes more plentifully into the part, is as it were troden or thruſt downe, and cauſes obſtruction, from whence neceſſarily followes a prohibition of tranſpiration, and a putrifaction of the bloud, by reaſon of the preternaturall heate. But the Phlegmon lookes red by reaſon of the bloud contained in it, becauſe the humor predominant in the part ſhines through the skinne.

CHAP. VIII.

Of the cauſes and ſignes of a Phlegmon.

The primitive cauſes of a Plegmon.

THe cauſes of a Plegmon are of three kindes; for ſome are primitive, ſome antecedent, and ſome conjunct. Primitive are falls, contuſions, ſtraines, immoderate labour, frictions, application of acrid ointments, burnings, long ſtaying or labouring in the hot Sun, a diet unconſiderate, and which breeds much bloud. The antecedent cauſes are, the great abundance of bloud, too plentifully flowing in the veines. The conjunct, the collection or gathering together of bloud impact in any part.

The Antecedent and conjunct.

The ſignes of a Phlegmon.

The ſignes of a Plegmon are ſwelling, tenſion, reſiſtance, feaveriſh heate, paine, pulſation, (eſpecially while it ſuppurates) redneſſe, and others, by which the abundance of bloud is ſignified.

And a little Phlegmon is often terminated by reſolution; but a great one by ſuppuration; and ſometimes it ends in a Scyrrhus, or a Tumor like a Scyrrhus; but otherwhile otherwhiles in a Gangren, that is, when the facultie, and native ſtrength of the part affected, is overwhelmed by the greatneſſe of the deſlxion, as it is reported by Galen. The Chirurgion ought to conſider all theſe things, that he may apply and vary ſuch medicines as are convenient for the nature of the Patient, and for the time and condition of the part affected.

Gal. l. de Tum.

CHAP. IX.

Of the cure of a true Phlegmon.

What kinde of diet muſt be preſcribed in a Plegmon.

THe Chirurgion in the cure of a true Phlegmon muſt propoſe to himſelfe foure intentions. The firſt of Diet; This, becauſe the Plegmon is a hot affect and cauſes a feaver, muſt be ordained of refrigerative and humecting things, with the convenient uſe of the ſixe things not naturall, that is, aire, meat, and drinke, motion and reſt, ſleepe and waking, repletion, and inanition; and laſtly, the paſſions of the minde. Therefore let him make choiſe of that aire which is pure and cleere, not too moiſt, for feare of defluxion, but ſomewhat coole; let him command meates which are moderately coole and moiſt, ſhunning ſuch as generate bloud too plentifully; ſuch will be brothes not to fat, ſeaſoned with a little Borage, Lettuce, Sorrell, and Succory, let him be forbidden the uſe of all ſpices, and alſo of Garlicke, and Onions, and all things which heate the bloud, as are all fatty and ſweet things, as thoſe which eaſily take fire. Let the Patient drinke ſmall wine, and much alaied with water: or if the feaver be vehement, the water of the decoction of Licoris, Barly, and ſweet almonds, or water and ſugar; alwayes having regard to the ſtrength, age, and cuſtome of the Patient.

For if he be of that age, or have ſo led his life, that he cannot want the uſe of wine, let him uſe it, but altogether moderately. Reſt muſt be commanded; for all bodies waxe hot by motion, but let him chiefely have a care that hee doe not exerciſe the part poſſeſſed by the plegmon for feare of a new defluxion. Let his ſleepe be moderate, neither, if he have a full body, let him ſleepe by day, ſpecially preſently after meate. Let him have his belly ſoluble, if not by nature, then by art, as by the frequent uſe of gliſters and ſuppoſitories. Let him avoid all vehement perturbations of minde, as hate, anger, brawling; let him wholly abſtaine from venery.

How to divert the defluxion of humors.

This manner of diet thus preſcribed, wee muſt come to the ſecond ſcope, that is, the diverſion of the defluxion, which is performed by taking away its cauſe, that is, the fulneſſe and illneſſe of the humors. Both which we may amend by purging and bloud-letting, if the ſtrength and age of the patient permit.

The paine muſt be aſſwaged.

But if the part receiving be weake, it muſt be ſtrengthened with thoſe things which by their aſtriction amend the openneſſe of the paſſages, the violence of the humor being drawne away by cupping glaſſes, frictions, ligatures. But if paine trouble the part, which is often the occaſion of defluxion, it muſt be mitigated by medicines aſſwaging paine.

When we muſt uſe repercuſſives.

The third ſcope is to overcome the conjunct cauſe. That we may attaine to this, we muſt enter into the conſideration of the tumor, according to its times, that is, the beginning, encreaſe, ſtate, and declination. For from hence the indications of variety of medicines muſt be drawne. For in the beginning we uſe repercuſſives to drive away the matter of the Phlegmon flowing downe, as the white of an Egge, Oxicrate, the juices or waters of Houſeleeke, Plantaine, Roſes; Cataplaſmes of Henbane, Pomgranate, Pills, Balauſties, Bole armenicke, *Terra ſigillata*, oile of Roſes, Quinces, Mirtilles, Poppies.

Of theſe ſimples, variety of compound medicines ariſes. This may be the forme of a Cataplaſme. ℞, *far. hordei* ℥ij. *ſucci ſempervivi, plantag. an.* ℥iij. *pul. malicorij, balauſtiorum & roſar. an.* ʒij *ol. mirtill. & roſar. an.* ℥j, *fiat Cataplaſma.* Another, ℞, *Plantag. ſolani, hyoſcyam. an. m.* ij. *cauda equin. tapſi barb. cintinodiæ an. m.* j. *coquantur perfecte in oxicrato, piſtentur, trajiciantur, addendo pulveris mirtill. nuc. cupreſſi. & roſ. rub. an.* ʒiij. *farin. fab.* ℥ij, *olei roſar. & cydon. an.* ℥ß:

mixe them and make a cataplaſma to the forme of a liquid pultis. And you may uſe this liniment, by dipping linnen clothes in it, and applying to the part; ℞, *ol. nymph. & roſar. an.* ℥iij, *aq. roſ. ſolani & plantag. an.* ℥ij, *aceti* ℥iij, *albumin. ovor um n.* iij, *fiat linimentum.* Alſo *ung. roſatum & ung. Album, camphor. Raſis* are good to apply to it, as in like manner, *Emp. Diacalcitheos* diſſolved in vinegar, and oile of Roſes, and alſo *Populeon* may be uſed. In the increaſe you muſt have care of the humor flowing downe, and of that which already impacted in the part, did formerly fall down. Therefore repercuſſives muſt be tempered & mixed with diſcuſſing medicines, but ſo that they may carry the chiefe ſway, as ℞, *fol. malvæ, abſinth. plantag. an. m.* iij, *coquantur in oxicrato, contundantur, trajectis* adde *farinæ fabarum & hordei an.* ℥j, *pul. roſar. rub. & Abſinth. an.* ʒi, *ol. roſar. & chamæm. an.* ℥j, *fiat cataplaſma od formam pultis ſatis liquidæ.* Another. ℞, *farinæ hord.* ℥iij. *farinæ ſem. lini & fænugræci, an.* ℥j. *coquantur in aqua communi, addendo ſub finem pul. mirtillorum, roſarum & chamameli an.* ℥ß, *axungiæ anſeris & olei roſarum an.* ℥j, *miſce, fiat cataplaſma.*

What locall medicines we muſt uſe in the encreaſe.

What in the ſtate,

But in the ſtate the repercuſſives, & diſcuſſives ought to be alike with ſome anodine, or mitigating medicines, if it be painefull, as ℞, *rad. Altheæ* ℥iiij, *malvæ, parietar. an. m.* ij, *coquantur ſub cineribus, addendo farin. fabarum & lentium an* ℥ij, *pulveris chamæm. & metiloti an.* ℥ß. *olei chamæm. & roſar. an.* ℥j. *axungiæ gal.* ℥ij. *fiat cataplaſma.* Another ℞, *micæ panis triticei aqua calida macerati* ℔ß, *pulveris roſar. rub. & abſinth. ana.* ℥vj. *olei aneth. & mellis com. an.* ℥ij. *miſce omnia ſimul & fiat cataplaſma ad formam pultis ſatis liquidæ*; which is of chiefe uſe when there is paine.

What in the declinations

But when the violence of paine and other ſymptomes are aſſwaged, it is likely that the plegmon is come to determination. Wherefore then we muſt uſe more powerfull and ſtrong diſcuſſives, and onely then beginning with the more gentle, leſt the ſubtiler part of the humor being diſſolved, the groſſer, remaining in the part, ſhould grow hard, as ℞, *mal. biſmal. an. m.* iij. *coquantur addendo farinæ hordei* ℥ij, *mellis com.* ℥j, *ol. chamæ. & melilot. an.* ℥ß, *fiat cataplaſma,* Or ℞, *radicum Brion. & Cucumer. agreſt. an.* ℥ij, *florum chamæm. & meliot. ana. m.* iij. *coquantur in hydromelite addendo farinæ, ſem. lini & fænugræc. an.* ℥ij. *ol. aneth. axungiæ Anſer. & anat. an.* ℥j. *fiat Cataplaſma.* And this plaiſter following may here finde place.

℞, *Diachyl. mag.* ℥ij, *Empl. de melilot.* ʒj, *olei aneth. & chamæmel. an.* ℥ß: diſſolve them all together and make a medicine for your uſe. Or ℞, *Empl. de mucag. & oxycro: an.* ℥ij. *Empl. Diachyl. Ireat.* ℥j. *olei liliorum & chamæmel. quantum ſatis eſt,* and make thereof a ſoft emplaiſter.

The correction of the accidents,

The fourth ſcope of curing a Phlegmon conſiſts in correction of the accidents which accompany it; of which paine is the principall.

Wherefore the Chirurgion muſt be diligent to aſſwage it, for beſides, that it weakens the ſtrength, and debilitates and depraves the function, it alſo cauſes defluxions by drawing the bloud and ſpirits to the part affected.

The diſcommodities of paine. Medicines aſwaging paine.

According to the varietie of paine there muſt be variety of medicines, as ℞, *micæ panis albi in lacte tepido macerati* ℔ß, *vitell. ovorum* iij. *ol. roſar.* ℥ij, *croci* ℈ß, *fiat cataplaſma.* Or ℞, *florum chamæm. & melil. an. p.* iij. *farinæ ſem. lini. & fenugræc. an.* ℥j. *fiat cataplaſma pultis, ſatis liquidæ.* Or ℞, *mucagin. rad. althea & fænugraci an.* ℥iij, *ol. roſar. & aneth. an.* ℥j. *farin. ſem. lini. quantum ſatis, ut inde formetur cataplaſma ſatis molle.*

Narcoticke medicines.

But if the paine remaine, and yeeld not to theſe remedies, we muſt flie to ſtronger, making uſe of narcoticks, or ſtupifactives, but with care leſt we benum, or dead the part; as ℞, *fol. hyoſcyani & papauer. ſub. cineribus coctorum an.* ℥iij, *adipis ſuillæ, & ol. roſ. an.* ℥j, *croci.* ℈ij, *fiat cataplaſma*: or, ℞, *fol. cicutæ & ſolani furioſi. an.* ℥iiij, *coquantur ſub cineribus, piſtentur, & traijciantur addendo unguent. popul. & ol. roſar. an* ℥j, *farin. fænugræc. quantum ſatis erit, ut inde formetur cataplaſma ad formam pultis liquidæ.*

CHAP. X.

The cure of an ulcerated Phlegmon.

The ſignes of a Phlegmon turning to an Abſceſſe.

BVt it often happens, that the humor is ſo impact in the part, that it cannot be repreſſed, and ſo groſſe, that it cannot be diſcuſſed; which we may know by the greatneſſe of the heat and ſwelling, by the bitterneſſe of the pricking paine, the feaver, and pulſation, and heavineſſe.

Lib. 2 ad Glauc. Cap. 7.

Wherefore laying aſide all hope of diſcuſſing, wee muſt come to ſuppuratives; For which purpoſe *Galen* foments the ſwollen part with water, or oile being warme, or with both of them; and then applies this following cataplaſme.

Suppurative medicines.

℞, *farinæ tric. vel micæ panis*, ℥iiij. *ol. com.* ℥iij, *aquæ com. quantum ſufficit, fiat cataplaſma*; or ℞, *rad. lilior. alb. & altheæ, an.* ℥iij, *fol. malvæ, parietar. & ſenecionis ana. m.* j. *coquantur in hydromelite, piſſentur, trajectis* adde *farin. ſem. lini* ℥ij, *axungiæ ſuillæ, ol. liliorum an.* ℥iß, *fiat cataplaſma*: Or ℞, *malvæ, biſmalv. violar. an. m.* j. *caricarum ping. n. x. paſſul.* ℥ij, *coquantur in aq. com. tuſis, & traiectis*, adde *mellis com.* ℥ij, *ung. baſilicon. & butyri recent. ana.* ℥j, *fiat cataplaſma.* You may profitably uſe for the ſame purpoſe *Empl. Diachylon magnum*, or *Baſilicon.* Or ℞, *Empl. Dyachil. mag.* ℥iij. *ung. baſilicon.* ℥j, *ol. liliorum* ℥ß. Of theſe mixed together make a a medicine for the foreſaid uſe.

The ſignes of *pus* or matter.

When the heat, paine, feaver, and other accidents ſhall remit, when the tumor hath a ſharpe head, when by the preſſing of your finger you finde the humor to flow as it were to and fro, then you may know that it is ripe.

Wherefore without any further delay the tumor muſt be opened, leſt the matter too long ſhut up, corrode the adjacent parts, and the ulcer become ſinuous and fiſtulous.

For this uſually happens, eſpecially then, when the matter is venenate or maligne, or when the ſwelling is neare a joint, or at the fundament, or ſuch like hot and moiſt places.

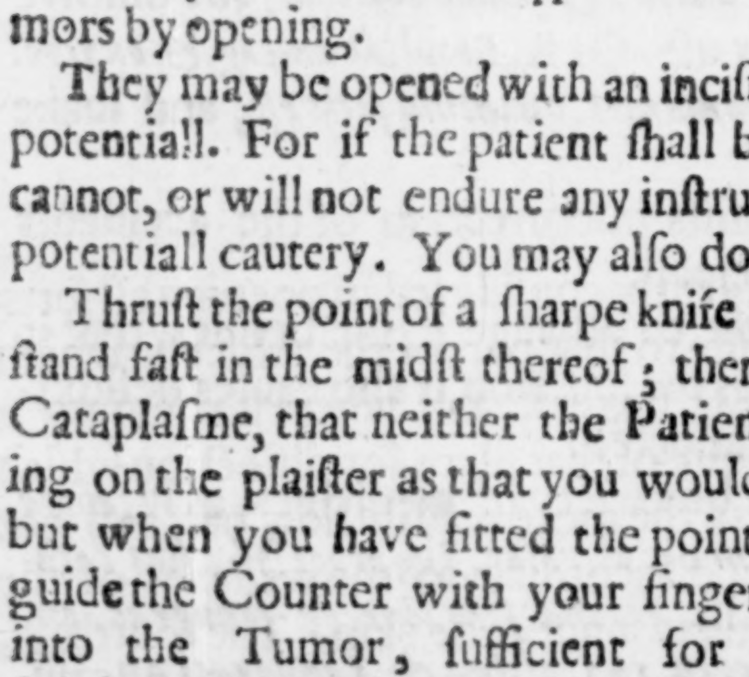
Hip. lib. de Fiſtula.

For by the decree of *Hippocrates* wee ſhould anticipate the maturation of ſuch tumors by opening.

They may be opened with an inciſion knife or cauſticke, and that, either actuall or potentiall. For if the patient ſhall be hartleſſe and leſſe confident, ſo that he either cannot, or will not endure any inſtrument, you muſt make way for the matter by a potentiall cautery. You may alſo doe the buſineſſe by another ſlight, as thus.

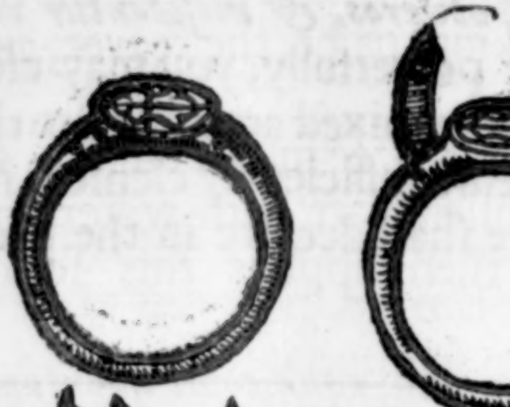
Thruſt the point of a ſharpe knife or lancet, through a braſſe counter that it may ſtand faſt in the midſt thereof; then cover it diligently with ſome Emplaiſter or Cataplaſme, that neither the Patient nor ſtanders by perceive the deceit: then laying on the plaiſter as that you would make a paſſage for the matter by that meanes, but when you have fitted the point to the part, where it is fit to open the tumor, ſo guide the Counter with your fingers, that you may preſently make an impreſſion into the Tumor, ſufficient for excluding the matter. I have here expreſſed three deliniations of ſuch Inſtruments, that you may uſe theſe, either bigger, leſſer or indifferent, as occaſion ſhall ſerve.

Counters with the points of Knives or Lances put through them.

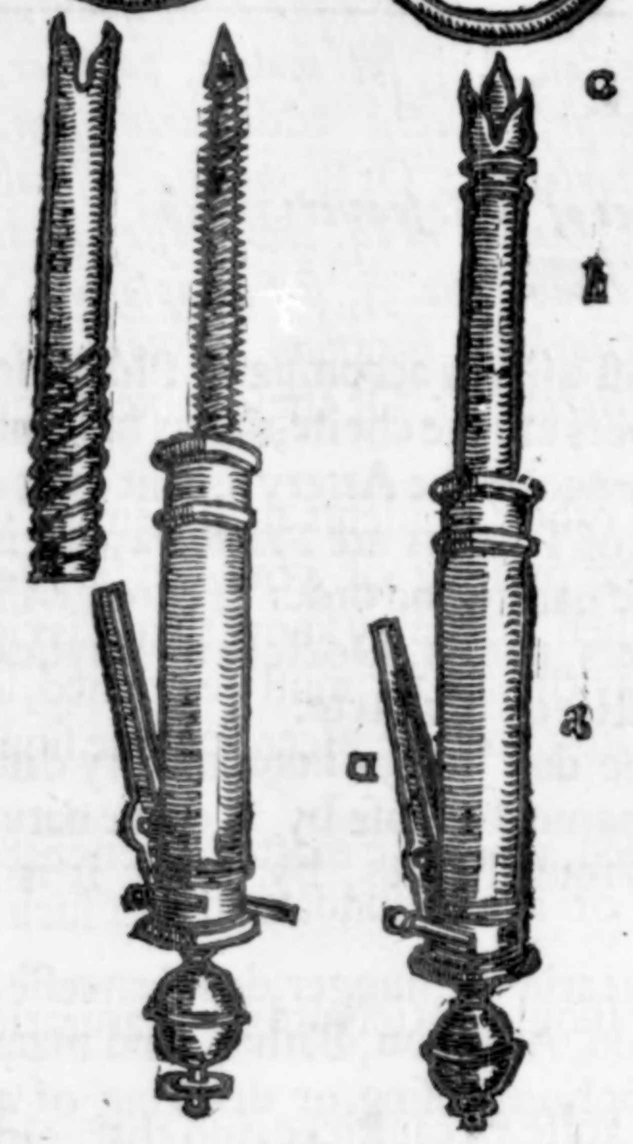


A. ſhewes the Counter or peece of Silver.
B. ſhewes the point of the Lancet.

Other Inſtruments for opening Abſceſſes.



Rings in which litle knives lye hid, fit for to open Abſceſſes.



The Deliniation of a Trunke or hollow Inſtrument going with a ſpring.

A. Shewes the thicker pipe.
B. Shewes another which enters and is faſtened in the other by a ſcrue.
C. The point of the Inſtrument, looking out.
D. The ſpring which forces the Inſtrument.

But there are ſeven things which muſt be diligently conſidered in opening all ſorts of Impoſtumes. The firſt is, that you put your knife to that part of the Abſceſſe which is the ſofter, and yeelds to the impreſſion of your fingers, and where it riſes into a head, or point. The ſecond is, that you make choiſe of that place for diſſection which is the loweſt, that ſo the conteined impurity may the more readily flow out, and not ſtay in the paſſage. The third is, that it be made according to the wrincles of the skin, and the right fibers of the Muſcles lying next under the skin. The fourth is, that you turne your knife from the larger veſſels and Nerves worth ſpeaking of. The fifth is, that the matter conteined in them be not evacuated too abundantly at once in great Abſceſſes, leſt thereby the ſtrength be dejected, the ſpirits being much waſted together with the unprofitable humor. The ſixth is, that the affected part be handled as gently as you can. The ſeventh is, that after the opening when the matter is evacuated, the Abſceſſe be clenſed, filled with fleſh, and laſtly conſolidated and cicatrized. But ſeeing that commonly after ſuch ſections ſome part of the Tumor remaines, all the conteined humor being not wholy ſuppurated, the Chirurgion may perceive that this is an implicite affect, that is a, Tumor and Vlcer. But the Cure thereof muſt be ſo, that you take away the Tumor before the ulcer; for the ulcer cannot be healed before the part be reſtored to its nature. Therefore the ſuppuratives formerly preſcribed muſt be uſed, and the ulcer muſt be dreſſed for two or three dayes with this following Medicine.

What the cure muſt be after the opening of the Abſceſſe

℞ *Vitellum vnius ovi, terebinth. Veneta, & ol. Roſar. an.* ℥ß, *fiat medicamentum.* Then you muſt ſeeke to clenſe it by this following Medicine.

Deterſive Medicines.

Vnguentum de Appio.

℞ *Mellis roſar.* ℥j, *Syrupi roſar. & tereb. Venet. an.* ℥jß, *far. hordei* ℥ij, *fiat medicamentum ad uſum.* For this very purpoſe there is a ſingular Deterſive made of *Appium* or Smallage of which this is the deſcription.

℞ *Succi appij, plantag. beton. an.* ℥j, *Mellis commun.* ℥v, *terebint. Venet.* ℥iiij, *farin. Hordei & Orobi, an.* ʒij, *pulveris Aloës, rad. Ireos florent. myrrhæ, an* ʒj. *coquatur mel cum ſuccis, quibus conſumptis addantur farinæ & pulveres, & miſceantur omnia ad formam unguenti.* But if you would clenſe it more powerfully, you may uſe *Vnguentum Apoſtolorum*; or *Vnguentum Aureum* and *Ægyptiacum* mixed according to the ſcope you conceive in your minds, when the ulcer ſhall ſeeme ſufficiently clenſed, it ſhall be filled with fleſh and cicatrized after the manner we ſhall declare in the proper treatiſe of the cure of Vlcers.

Chap. XI.

Of feavers, and the cures of theſe feavers which accompany Plegmons.

The Feaver of a Phlegmon. What a Feaver is.

Amongſt the *Symptoms* which moſt uſually accompany Phlegmons, & afflict all the body of the patient, Feavers are the cheiſe; that is hot, and dry diſtempers kindled in the heart, and thence by the Artery is ſent over all the body; yet theſe which uſually follow this kinde of Tumors are *Ephemeræ*, that is, Diary, unputrid *Synochi* or putrid *Synochi*; Of whoſe nature and order of cure I will here briefly relate what I have learnt from my Maſters, that is, Doctors of Phyſicke, as I have beene converſant with them in the practiſe of my Arte.

What an Ephemera, or Diarye is.

The *Ephemera*, or Diary [that is of one day] is, a hote and dry diſtemperature kindled in the vitall ſpirits. It hath that name, becauſe by its owne nature it tarryes not above the ſpace of one day or twenty foure houres, by reaſon it is kindled in a ſubtle eaſily diſſipable matter.

The cauſes thereof.

The efficient cauſes of this Feaver are wearineſſe, hunger, drunkenneſſe, anger, fury, ſorrow, watching, great and peircing cold, Aduſtion, Bathes, and manner of living inclining more to heat than ordinary, applying, uſing or drinking of acride medicines as Poyſons, or of hot meats, and drinkes; to conclude, all the efficient cauſes common to all Feavers, putrifaction onely excepted which properly appertaines to putride feavers.

Aphoriſm. 55. lib. 4.

For a *Bubo* alſo, which is a *Phlegmon* of the Glandules, cauſes a Diary, as *Hippocrates* ſhewes. All feavers proceeding from the Tumors of the Glandules are evill, the Diary excepted. Which *Aphoriſme* muſt be underſtood warily and with that diſtinction which *Galen* gives in his commentary, where he ſaith; It is only to be underſtood of Tumors riſen in the Glandules without occaſion, that is, without any evident and manifeſt cauſe; for otherwiſe Feavers that thence take their originall, though not Diary, yet are not all evill, as we learne by Buboes in Children, and the venereous Buboes, which happen without inflammation, or corruption of the liver, for ſuch commonly have no maligne Feaver accompanying them, which thing is worthy a Chirurgions obſervation.

The ſignes of a Diarie.

The common ſignes of a Diary are, a moderate and vaporous heate feeling gentle to the hand, a pulſe ſwift and frequent, ſometimes great and ſtrong, as when the Diary is cauſed by anger; ſometimes litle, if the Feaver proceede from ſorrow, hunger, cold, crudity; for other reſpects equall and ordinary.

The moſt certaine ſignes are, if the Feaver come upon one not by litle and litle but ſodainly and that from ſome externall and evident cauſe, no loathing of meat, no cauſeleſſe wearineſſe, no deepe ſleepe, yawning, great paine, reſtleſneſſe, ſhaking nor cold going before, and laſtly no other troubleſome ſymptome preceeding. Wee here make no mention of the urine, becauſe moſt frequently they reſemble the vrines of ſound bodyes; for in ſo ſhort a time as Diaryes endure, there cannot ſo great a perturbation be raiſed in the blood that there may be ſignes thereof found in the vrine.

Why in a Diarye the vrines like to theſe in health.

A Diary is ended in one fit, which by the proper nature of this Feaver laſts but one day, although ſometimes, otherwiſe it is extended to three, or, foure dayes ſpace; and then it eaſily degenerates into a Putride, eſpecially any error of the Patient, Phiſition, or thoſe which attend him concurring therewith, or if the externall things bee not rightly fitted.

This Feaver is terminated either by inſenſible tranſpiration, or by the moiſture of the skin, or by a ſweate naturall, gentle, and not ill ſmelling; to this Diary wee may referre the unputride *Synochus*, generated of blood not putrid, but onely heated beyond meaſure. For uſually there ariſes a great heate over all the body, by meanes of the blood immoderatly heated; whence the veines become more tumide, the face appeares fiery, the Eyes red and burning, the breath hot, and to conclude, the whole habite of the body more full, by reaſon of that Ebullition of the blood, and the diffuſion of the vapours thence ariſing over all the body: Whence it is, that this kinde of *Synochus* may be called, a vapourous Feaver. To this Children are incident as alſo all ſanguine bodyes, which have no ill humors. The cure of this and the *Ephemera* or Diary is the ſame; becauſe it may ſcarſe ſeeme different from the *Ephemera* in any other thing, than that it may be prolonged for three or foure dayes. Wherefore whatſoever we ſhall ſay for the cure of the *Ephemera*, may be all applyed to the *Synochus*, bloodletting excepted, which in an unputrid *Synochus* is very neceſſary.

The unputride *Synochus*.

Now the Cure of a Diary Feaver conſiſts in the decent uſe of things not naturall, contrary to the cauſe of the diſeaſe; wherefore bathes of warme and naturall water are very profitable; ſo that the Patient be not Plethoricke, nor ſtufft with excrements, nor obnoxious to catarrhes and defluxions, becauſe a catarrhe is eaſily cauſed and augmented by the humors diffuſed and diſſolved by the heate of a bath; therefore in this caſe we muſt eſchew frictions, and annointing with warme oile, which things notwithſtanding are thought very uſefull in theſe kind of Feavers, eſpecially when they have their originall from extreme labour, by aſtriction of the skin or a *Bubo*. Let this be a generall rule, that to every cauſe, whence this Feaver proceeded, you oppoſe the contrary for a remedy; as to labour, reſt; to watching, ſleep; to anger and ſorrow, the gratefull ſociety of friends, and all things repleniſhed with pleaſant good will; and to a *Bubo*, the proper cure thereof.

The cure of a Diary feaver.

Wine moderately tempered with water according to the cuſtome of the ſicke patient, is good and profitable in all cauſes of this Feaver, except he be pained in his head, or that the Feaver drew its originall from anger, or a *Bubo*; for in this laſt caſe eſpecially, the patient muſt abſtaine wholy from wine, untill the inflammation come to the ſtate, and begins to decline. This kinde of Feaver often troubles infants; and then you muſt preſcribe ſuch medicines to their Nurſes, as if they were ſicke, that ſo by this meanes their milke may become medicinable. Alſo it will be good to put the Infant himſelfe into a bath of naturall and warme water, and preſently after the bath to anoint the ridge of the backe and breſt with oile of Violets. But if a *Phlegmon* poſſeſſe any inward part, or otherwiſe by its nature be great, or ſeated neare any principall Bowell, ſo that it may continually ſend from it either a putrid matter or exhalation to the heart, and not onely affect it by a quality or preternaturall heate by the continuity of the parts, thence will ariſe the Putride *Synochus*, if the blood by contagion putrifying in the greater veſſells, conſiſts of an equall mixture of the foure humors. This Feaver is cheifly thus knowne, it hath no exacerbations, or remiſſions, but much leſſe intermiſſions; it is extended beyond the ſpace of twenty foure houres, neither doth it then end in vomite, ſweat, moiſture, or by litle and litle by inſenſible tranſpiration, after the manner of intermitting Feavers, or Agues; but remaines conſtant, untill it leaves the Patient for altogether; it commonly happens not unleſſe to theſe of a good temper and complexion, which abound with much blood, and that tempered by an equall mixture of the foure humors. It commonly endures not long, becauſe the blood by power of ſome peculiar putrifaction degenerating into choler or Melancholy, will preſently bring forth another kinde of feaver, to wit a Tertian or continued Quartaine.

The uſe of wine in a Diarye.

How a putride *Synochus* is cauſed.

The cure of this Feaver (as I have heard of moſt learned Phyſitions) cheifly conſiſtsin Bloodletting. For by letting of blood the fullneſſe is diminiſhed, & therfore the obſtruction is taken away, and laſtly the putrefaction. And ſeeing that in this kinde of

Phlebotomy neceſſary in a putride *Synochus*.

Feaver there is not onely a fault of the matter, by the putrefaction of the blood, but alſo of the Temper by exceſſe of heat; certainely Phlebotomy helps not only, as we ſaid, the putrefaction, but alſo the hote diſtemper. For the blood in which all the heate of the creature is conteined, whileſt it is taken way, the acrid and fuliginous excrements exhale and vaniſh away with it, which kept in, encreaſed the Feveriſh heate. Moreover, the veines, to ſhun emptineſſe, which nature abhors, are filled with much cold aire in ſtead of the hot blood which was drawne away, which followes a cooling of the habite of the whole body; yea and many by meanes of Phlebotomy have their bellyes looſed, and ſweate, both which are much to be deſired in this kinde of Feaver.

What benefit we may reape by drawing blood even to fainting.

This moved the ancient Phyſitions, to write, that we muſt draw blood in this diſeaſe, even to the fainting of the Patient.

Yet becauſe thus, not a few have poured out their lives together with their blood, it will be better and ſafer to divide the evacuations, and draw ſo much blood at ſeverall times, as the greatneſſe of the diſeaſe ſhall require, and the ſtrength of the Patient may beare.

Why we muſt give a clyſter preſently after bloodletting.

When you have drawne blood, forthwith inject an emollient and refrigerative clyſter; leſt that the veines emptied by Phlebotomy may draw into them the impurity of the Guts; but theſe clyſters which coole too much, rather binde the belly, than looſe it. The following day the Morbificke matter muſt be partly evacuated by a gentle purge, as a bole of *Caſsia*, or *Catholicon*; then muſt you appoint Syrupes which have not onely a refrigerative quality, but alſo to reſiſt putrefaction, ſuch as the Syrupe of Lemmons, Berberries, of the Iujce of Citrons, of Pomgranats, Sorrell and Vineger; let his diet be abſolutely cooling and humecting and alſo ſlender; for the native heate much debilitated by drawing of a great quantity of blood cannot equall a full diet. Therefore it ſhall ſuffice to feed the Patient with chicken and veale brothes made with cooling herbes, as Sorrell, Lettuce and Purſlaine. Let his drinke be Barly water, Syrup of Violets mixed with ſome pretty quantity of boiled water, *Iulepum Alexandrinum*, eſpecially if he be troubled with ſcouring, or laske. But the Phyſition muſt cheifly have regard to the fourth day, for if then there appeare any ſignes of concoction in the excrements, the *Criſis* muſt be expected on the ſeventh day and that either by a looſeneſſe of the belly, or an aboundance of urine, by vomits, ſweats, or bleeding. Therefore we muſt then doe nothing, but commit the whole buſineſſe to nature.

What Syrupes profitable in this caſe.

Why a ſlender Diet muſt be uſed after letting much blood.

When drinking of water is to be permitted in a putride *Synochus*.

But for drinking cold water, which is ſo much commended by *Galen* in this kinde of Feaver, it is not to be ſuffered before there appeare ſignes of concoction; moreover in the declining of the diſeaſe the uſe of wine will not be unprofitable to helpe forwards ſweats.

Chap. XII.

Of an Eryſipelas, *or Inflammation.*

HAving declared the cure of a Phlegmon, cauſed by laudable blood, wee muſt now treate of theſe tumors which acknowledge Choler the materiall cauſe of their generation, by reaſon of that affinity which interceeds betweene Choler and Blood. Therefore the tumors cauſſed by naturall Choler, are called *Eryſipelata*, or Inflammations; theſe conteine a great heate in them, which cheifly poſſeſſes the skin, as alſo oftentimes ſome portion of the fleſh lying under it. For they are made by moſt thin and ſubtle blood (which upon any occaſion of inflammation eaſily becomes cholericke) or by blood and choler, hotter than is requiſit, and ſometimes of choler mixed with an acride ſerous humor.

The definition of an *Eryſipelas*.

Gal. Cap. 2. lib. 14. Meth. med. & 2. ad Glau.

That which is made by ſincere and pure choler, is called by *Galen*, a true and perfect *Eryſipelas*. But there ariſe three differences of *Eryſipelaes* by the admixture of choler with the three other kinds of humors. For if it being predominant be mixed with blood, it ſhall be termed *Eryſipelas Phlegmonodes*; if with phlegme, *Eryſipelas œdematodes*; if with Melancholy, *Eryſipelas Scirrhodes*. So that the former and ſubſtantive word ſhewes the humor bearing dominion, but the latter or adjective that which is inferiour in mixture. But if they concurre in equall quantity, there will be thereupon made *Eryſipelas Phlegmone*; *Eryſipelas* œdema; *Eryſipelas ſcirrhus*.

Two kinds of *Eryſipelas*.

Galen acknowledges two kinds of *Eryſipelaes*, one ſimple and without an ulcer, the other ulcerated. For Choler drawne and ſevered from the warmneſſe of the blood, running by its ſubtlety and acrimony vnto the skin, ulcerates it; but reſtrained by the gentle heat of the blood, as a bridle, it is hindred from peircing to the top of the skin, and makes a tumor without an ulcer. But of unnaturall choler are cauſed many other kinds of cholericke tumors, as the *Herpes exedens*, and *Miliaris*, and laſtly all ſorts of tumors which come betweene the *Herpes* and *Cancer*. You may know *Eryſipelaes* cheifly by three ſignes, as by their colour, which is a yellowiſh red; by their quicke ſliding backe into the body at the leaſt compreſſion of the skin (the cauſe of which is the ſubtlety of the humor and the outward ſite of it under the skin, whereupon by ſome an *Eryſipelas* is called a Diſeaſe of the skin) Laſtly by the number of the Symptoms, as heat, pulſation, paine. The heat of an *Eryſipelas* is far greater than that of a Phlegmon, but the pulſation is much leſſe; for as the heat of the blood is not ſo great, as that of choler, ſo it farre exceeds choler in quantity and thickneſſe, which may cauſe compreſſion and obſtruction of the adjacent muſcle.

Gal. lib. 2. ad Glauc.

For Choler eaſily diſſipable by reaſon of its ſubtlety quickly vaniſhes, neither doth it ſuffer it ſelfe to be long conteined in the empty ſpaces betweene the muſcles; neither doth an *Eryſipelas* agree with a Phlegmon in the propriety of the paine. For that of an *Eryſipelas* is pricking and biting without tenſion, or heavineſſe, yet the primitive, antecedent and conjunct cauſes are alike of both the tumors. Although an *Eryſipelas* may be incident to all parts, yet principally it aſſailes the face, by reaſon of the rarity of the skin of that place, and the lightneſſe of the cholericke humor flying upwards. It is ill when an *Eryſipelas* comes upon a wound, or ulcer, and although it may come to ſuppuration, yet it is not good; for it ſhewes that there is obſtruction by the admixture of a groſſe humor, whence there is ſome danger of eroſion in the parts next under the skin.

Hip. Apho. 79 Sect. 7. Aph. 25 Sect: 6. Aph. 43. Sect. 3.

It is good when an *Eryſipelas* comes from within outwards; but ill when from without it retires inward. But if an *Eryſipelas* poſſeſſe the wombe it is deadly, and in like manner if it ſpread too far over the face, by reaſon of the ſympathy of the membranes of the braine.

CHAP. XIII.

Of the cure of an Eryſipelas.

FOr the cure of an *Eryſipelas* we muſt procure two things, to wit, evacuation and Refrigeration. But becauſe there is more need of cooling, than in a Phlegmon, the cheefe ſcope muſt be for refrigeration. Which being done, the conteined matter muſt be taken away and evacuated with moderatly reſolving medicines. We muſt doe foure things to attaine unto theſe forementioned ends. Firſt of all we muſt appoint a convenient manner of Diet, in the uſe of the ſixe things not naturall; that is, we muſt incraſſate, refrigerate and moiſten as much as the nature of the diſeaſe and patient will ſuffer, much more than in a Phlegmon; then we will evacuate the Antecedent matter, by opening a veine, and by medicines purging choler. And that by cutting the Cephalicke veine, if there be a portion of the blood mixed with Choler, if the *Eryſipelas* poſſeſſe the face, and if it be ſpread much over it.

Gal: 14. Method.

4 Things to be performed in curing an *Eryſipelas*.

In what *Eryſipelas* it is convenient to let blood, in what not.

But if it ſhall invade another part, although it ſhall proceed of pure choler, Phlebotomy will not be ſo neceſſary, becauſe the blood which is as a bridle to the choler being taken away, there may be danger, leſt it become more fierce; yet if the body be plethoricke, it will be expedient to let blood, becauſe this, as *Galen* teacheth, is oft times the cauſe of an *Eryſipelas*. It will be expedient to give a clyſter of refrigerating and humecting things before you open a veine; but it belongs to a learned and prudent Phyſition to preſcribe medicines, purging choler.

What topicke medicines are fit to be uſed it the beginning of an *Eryſipelas*

The third care muſt be taken for Topick, or locall medicines, which in the beginning and encreaſe muſt be cold and moiſt, without any either drynes or aſtriction, becauſe the more acride matter by uſe of aſtringent things being driven in, would ulcerate and fret the adjacent particle.

Galen and *Avicen* much commend this kinde of remedy; Take faire water ℥vj. of the ſharpeſt Vinegar ℥j, make an Oxycrate, in which you may wet linnen clothes and apply to the affected part and the circumjacent places, & renew them often. Or ℞, *Succi ſolani, plantag. & ſempervivi, an.* ℥ij, *aceti* ℥ß, *Mucaginis ſem. Pſylij* ℥ij, *ſucci hyoſcyami* ℥j, *Miſce.* But if the *Eryſipelas* be upon the face, you muſt uſe the medicine following.

℞. *Vnguent. Roſ.* ℥iiij, *ſucci plantagin. & ſempervivi, an.* ℥j. *trochiſc. de Camphora* ʒß, *aceti parum*; let them be mixed together and make a liniment. But if the heate and paine be intolerable, we muſt come to narcoticke medicines. As, ℞ *ſucci hyoſcyami, ſolani, cicutæ, an.* ℥j. *album. ovorum n. ij. aceti* ℥ß, *opij & Camphor. an. gra.* 4 *croci* ℈ß, *Mucaginis ſem. pſill. & fænigr. extractæ in aq. roſ. & plantag. an* ℥j, *ol. de papau.* ℥ij. *fiat linimentum, addendo ung. refrigerantis Gal. camphor q. ſatis ſit.* Yet we muſt not uſe ſuch like medicines too long, leſt they cauſe an extinction of the native heate and mortification of the part.

What caution muſt be had in the uſe of narcoticke medicines.

Wherefore ſuch Narcoticke medicines muſt be uſed with regard of place, time and ſuch other circumſtances. Therefore we may three manner of wayes underſtand when to deſiſt from uſing Narcoticke or ſtupefactive medicines. The firſt is when the Patient in the affected part feels not ſo much heat, pricking and paine, as before; The ſecond is when the part feeles more gentle to the touch than before; The third when the fiery and pallide colour begins by litle and litle to waxe livid and blacke; for then muſt we abſtaine from Narcoticke, and uſe reſolving and ſtrengthening things, whereby the part may be revived and ſtrengthened by recalling the Native heate; As ℞. *Farinæ hordei & Orobi, an.* ℥ij *farinæ ſem. lini* ℥jß. *coquantur in Hydromelite vel oxycrato, addendo pulv. roſarum & chamæmal. an.* ℥ß. *ol. anethi & chamæm. an.* ℥j, *fiat cataplaſma.* Or you may uſe this following fomentation ℞. *Rad. Altheæ* ℥ij, *fol. malvæ, biſmal. pariet. abſinthij, ſalviæ, an. m. j. flor. chamæm. meliloti, roſar. rub. an. m. ij. coquantur in æquis partibus vini & aquæ, & fiat fotus cum ſpongia.* After the fomentation you may apply an Emplaiſter of *Diachylon Ireatum*, or *Diapalma* diſſolved in oile of chamomille and Melilote, and ſuch other like.

Reſolving and ſtrengthening medicines.

The fourth Intention which is of the correction of accidents, we will performe by theſe meanes which we mentioned in curing a Phlegmon, by varying the medicaments, according to the judgement of him which undertakes the cure.

CHAP. XIIII.

Of the Herpes; *that is Teaters, or Ringwormes, or ſuch like.*

What a *Herpes* is, what be the kinds thereof.
Gal. 2. ad Glauconem.
What the *Herpes miliaris* is.
What the *exedens.*

HErpes is a tumor cauſed by pure choler ſeparated from the reſt of the humors, that is carryed by its naturall lightneſſe and tenuitye even to the outer or ſcarfe skin, and is diffuſed over the ſurface thereof. *Galen* makes three ſorts of this tumor. For if perfect choler of an indifferent ſubſtance, that is, not very thicke, cauſe this tumor, then the ſimple *Herpes* is generated, obteining the name of the *Genus*; but if the humor be not ſo thin, but compounded with ſome ſmall mixture of Phlegme, it will raiſe litle bliſters over the skin like to the ſeeds of Millet, whence it was that the Ancients called this Tumor the *Herpes Militaris*. But if it have any admixture of Melancholy, if will be an *Herpes exedens*, terrible by reaſon of the eroſion or eating into the skin and muſcles lying under it.

Three intentions in curing *Herpes*,

There are abſolutely three intentions of curing; The firſt is to appointe a Diet juſt like that we mentioned in the cure of an *Eryſipelas*; The ſecond is to evacuate the antecedent cauſe, by medicines purging the peccant humor, for which purpoſe oftimes

times clyſters will ſuffice, eſpecially if the patient be ſomewhat eaſie by nature, and if the urine flow according to your deſire; for by this a great part of the humor may be carryed into the bladder; The third ſhall be to take away the conjunct cauſe by locall medicines ordained for the ſwelling and ulcer: Therefore the Chirurgion ſhall have regard to two things, that is, the reſolving of the tumor, and the drying up of the ulcer, for every ulcer requires drying, which can never be attained unto, unleſſe the ſwelling be taken away. Therefore becauſe the chiefeſt care muſt be to take away the Tumor, which unleſſe it be performed there can be no hope to heale the ulcer, he ſhall lay this kinde of medicine to diſſolve and dry, as ℞. *Ceruſæ & tutbiæ præpar. an.* ℥j. *ol. roſ. & adipis capon. an.* ℥ij. *corticis pini uſti, & loci,* ʒß *ceræ quantum ſatis, fiat unguentum.* Or ℞. *Farin. hordei & lent. an.* ℥ij, *coquantur in decocto corticis mali granati, balauſt. plantag. addendo pulveris roſar. rub. abſinth. an.* ʒß. *olei Myrtillor. & mellis com. an.* ʒvj, *fiat ungentum, ut artis eſt.* But for an *Herpes Miliaris* theſe muſt chiefly be uſed, ℞. *pulv. gallarum, malicorũ, balauſt. boli armeni an.* ℥j. *aquæ roſ.* ℥iij, *aceti acerrimi* ℥j. *axungiæ anſer. & olei Myrtillor. an.* ℥jß, *terebinth.* ℥j *fiat unguentum ad uſum.* I have often found moſt certaine helpe in *unguentum enulatum cum Mercurio*, for it kills the puſtules, and partly waſts the humor conteined in them. Yet if the ulcer, not yet neither yeelds, but every day diffuſes it ſelfe further and further, you ſhall touch the edges and lipps thereof with ſome acride medicine, as *Aqua fortis*, oyle of Vitriole, or ſuch like, for by this kinde of remedy, I have oft times healed fretting ulcers, which ſeemed altogether incureable.

A rule for healing ulcers conjoined with tumors.

The force of *Vnguentum enulatum cum Mercurio.*

Medicines fit for reſtraining eating and ſpreading ulcers.

CHAP. XV.

Of Feavers, which happen upon Eryſipelous Tumors.

AS Feavers ſometimes happen upon Inflammations, and Eryſipelaes, which ſavour of the humor whereof they proceed, that is, Choler. Therefore ſeeing it is peculiar to Choler, to move every third day, it is no marvaile if great Inflammations bring with them Tertian Feavers, or Agues, which have their fit every third day; for it is called an Intermitting Tertian which comes every other day.

A vulgar deſcription of an intermitting Tertian feaver.

The Primitive cauſes in generall are ſtrong exerciſes, eſpecially in the hot Sunne, the uſe of heating, and drying either meats or medicines, great abſtinence joyned with great labour, care, ſorrow; the antecedent cauſes are the plenty of choler in the body, an hot and dry diſtemperature either of the whole body, or of the liver onely: the conjunct cauſe is the putrefaction of the Cholericke humor lying in ſome plenty without the greater veſſells, in the habit of the body.

The cauſes of Tertian feavers.

The ſignes, a ſhaking or ſhivering like as when we have made water in a cold winter morning, a great pricking, ſtretching, or ſtiffneſſe, as if there were pins thruſt into us over all our bodies, by reaſõ of the acrimony of the cholerick humor driven uncertainly & violently over all the body, & the ſenſible membranous & Nervous particles at the beginning of the fit; then preſently the heate becomes acride, the Feaver kindled, like a fire in dry ſtraw; the pulſe is great, quicke and equall; the tongue dry; the urine yellowiſh, red and thin. The Symptomes are watchings, thirſt, talking idlely, anger, diſquietneſſe & toſſing the body at the leaſt noiſe or whiſpering. Theſe Feavers are terminated by great ſweats. They are incident to cholericke young men, ſuch as are leane, & in Summer; after the fit oft times follow cholericke vomiting & yellowiſh ſtooles. After the fit there followes an abſolute intermiſſion reteining no reliques of the Feaver, untill the approach of the following fit, becauſe all the cholericke matter by the force of that fit & nature is eaſily caſt out of the body, by reaſon of its natural levity & facillity; wheras in Quotidians there is no ſuch thing, as which after the fit alwaies leave in the body a ſenſe & feeling of a certaine inequality by reaſon of the ſtubborneſſe of the Phlegmatick humor, & dulneſſe to motion. The fit commonly uſes to endure 4, 5, or 6 houres, although at ſometime it may be extended to 8 or 10. This Feaver is ended at 7 fits, and uſually is not dangerous, unleſſe there be ſome error committed by the Phyſition, Patient, or ſuch as attend him. Tertians in ſummer are ſhorter, in winter longer.

The ſignes of an intermitting Tertian.

The Symptomes.

Why Tertians have an abſolute ceſſation of the feaver at the end of each fit.

Wherefore the beginning of the fit is accompanied with ſtiffeneſſe, or ſtretching, the ſtate with ſweate, whereupon if the noſe, lips or mouth breake forth into pimples or ſcabbes, it is a ſigne of the end of the Feaver, and of the power of nature which is able to drive the conjunct cauſe of the diſeaſe from the center to the habite of the body; yet theſe pimples appeare not in the declining of all Tertians, but onely then, when the Cholericke humor cauſing the Feaver ſhall reſide in the ſtomacke, or is driven thither from ſome other part of the firſt region of the Liver. For hence the ſubtler portion therof carryed by the continuation of the inner coate to the mouth and noſe, by its acrimony eaſily cauſes pimples in theſe places. The cure is performed by Diet, and Pharmacy.

The Diet of ſuch as have a Tertian.

Therefore let the Diet be ſo ordered for the ſixe things not naturall, that it may incline to refrigeration and humection, as much as the digeſtive faculty will permit, as Lettuce, Sorrell, Gourds, Cowcumbers, Mallowes, Barly Creames, Wine much alaid with water, thinne, ſmall, and that ſparingly and not before ſignes of concoction ſhall appeare in the urine; for at the beginning he may not uſe wine, nor in the declining, but with theſe conditions, which we have preſcribed.

When ſuch as have a tertian may uſe wine.

The time of feeding the patient.

But for the time of feeding the patient, on that day the fit is expected, hee muſt eate nothing for three houres before the fit, leſt the aguiſh heate lighting on ſuch meats as yet crude, may corrupt and putrefie them; whence the matter of the Feaver may be increaſed (becauſe it is as proper to that heate to corrupt all things, as to the native to preſerve and vindicate from putrefaction), the fit lengthened, and nature called away from the concoction and excretion of the Morbificke humor; yet wee may temper the ſeverity of this law by having regard to the ſtrength of the patient; for it will be convenient to feed a weake patient not onely before the fit, but alſo in the fit it ſelfe, but that onely ſparingly, leſt the ſtrength ſhould be too much impaired.

When to purge the patient.

Now for Pharmacy; It muſt be conſidered, whether the ſtrength of the Patient be ſufficient, if the humors abound; for then you may preſcribe *Diaprunum ſimplex*, *Caſsia* newly extracted, the decoction of Violets, of Citrine Myrobalanes; Syrupes of Violets, Roſes, of Pomegranats and Vineger. But if the powers of the Patient languiſh, hee muſt not onely not be purged, but alſo muſt not draw blood too plenteouſly, becauſe Cholericke men ſoone faint, by reaſon of the facile and eaſie diſſipation of the ſubtle humors and ſpirits; beſides, ſuch as are ſubject to tertian Feavers doe not commonly abound with blood, unleſſe it be with Cholericke blood, which muſt rather be renued, or amended by cooling and humecting things, than evacuated. Yea verily, when it is both commodious and neceſſary to evacuate the body, it may be attempted with far more ſafety by ſuch things as worke by inſenſible tranſpiration, which provoke ſweats, vomite or urine by reaſon of the ſubtlety of the Cholericke humor, than by any other. Alſo the frequent uſe of emollient glyſters made with a decoction of Prunes, jujubes, Violets, branne and Barly, will profit much; If the patient fall into a *Delirium* or talke idlely by reaſon of the heate and drynes of the head, with a particular exceſſe of the Cholericke humor, the head muſt be cooled by applying to the Temples and forehead and putting into the noſe oyle of Violets, Roſes, or womans milke. Let the feete and legs be bathed in faire and warme water, and the ſoles of the feet be anoynted with oyle of Violes and ſuch like.

In the declining, a Bath made of the branches of Vines, the leaves of Willowes, Lettuce and other refrigerating things boyled in faire water, may be profitablely uſed three houres after meat eaten ſparingly.

When the time is fit to uſe a Bath,

But I would have you ſo to underſtand the Declination or declining not of one particular fit, but of the diſeaſe in generall, that the humors already concocted, allured to the skin by the warmneſſe of the bath, may more eaſily and readily breathe forth: he which otherwiſe ordaines a bath at the beginning of the diſeaſe, will cauſe a conſtipation in the skin and habit of the body, by drawing thither the humors peradventure tough and groſſe, no evacuation going before.

What kinds of evacuations are moſt fit in a Tertian.

Alſo it will be good after generall purgations to cauſe ſweate by drinking White wine thinne and well tempered with water; but urine by a decoction of Smallage and Dill; Certainely ſweate is very laudable in every putride

Feaver, becauſe it evacuates the conjunct matter of the diſeaſe, but chiefly in a Tertian, by reaſon that choler by its inbred levity eaſily takes that way, and by its ſubtilty is eaſily reſolved into ſweat. But that the ſweate may be laudable, it is fit it be upon a criticall day, and be foreſhewed by ſignes of concoction agreeable to the time and manner of the diſeaſe. Sweats when as they flow more ſlowly are forwarded by things taken inwardly and applyed outwardly; by things taken inwardly, as with white wine, with a decoction of Figgs, Raiſons ſtoned, graſſe roots and the like opening things; but by things outwardly applyed, as ſpunges dipped in a decoction of hot herbes (as Roſmary, Time, Lavander, Marjerome and the like) applyed to the Greines, Armeholes, and ridge of the backe.

Sudoriſicks.

You may for the ſame purpoſe, fill two Swines bladders with the ſame decoction, or elſe ſtone bottles, and put them to the feete, ſides, and betweene the thighes. Then let this be the bound of ſweating, when the patient begins to waxe cold, that is, when the ſweate feeles no more hote, but cold.

But by the conſent of all, blood muſt not be letten after the third fit, but preſently at the beginning of the Feaver, according to the opinion and preſcription of *Galen*; for ſeeing this Feaver for the moſt part is terminated at ſeven fits, if you ſtay untill the third fit be paſt, the Feaver will now be comne to its ſtate; but *Hippocrates* forbide us to move any thing in the ſtate, leaſt nature then buſied in concocting the diſeaſe, be called from its begun enterpriſe.

When blood muſt be let.

Aphor.29. Sect.2.

CHAP. XVI.

Of an Oedema *or cold Phlegmaticke Tumor.*

Hitherto wee have treated of hote Tumors, now wee muſt ſpeake of cold; Cold Tumors are onely two, an *Oedema*, and a *Scirrhus*; And for all that *Hippocrates* and the Ancients uſed the word *Oedema* for all ſorts of Tumors in generall; yet by *Galen* and theſe Phyſitions which ſucceeded him, it hath beene drawne from that large and generall ſignification, to a more ſtraite and ſpeciall, onely to deſigne a certaine *ſpecies*, or kinde of Tumor.

Gal. lib. de tumo. praeter naturā.

Wherefore an *Oedema* is a ſoft, laxe and painleſſe Tumor, cauſed by collection of a flegmaticke humor.

What an *Oedema* is.

The Ancients made eight differences of Tumors proceeding of Phlegme. The firſt they termed a true and lawfull *Oedema* proceeding from naturall Phlegme; from unnaturall Phlegme by admixtion of another humor they would have three ſorts of Tumors to ariſe, as that by mixture of blood, ſhould be made an *Oedema Phlegmonodes*, and ſo of the reſt.

The differences of *Oedemas*

Beſides, when they perceived unnaturall Phlegme either puffed up by flatulency, or to flow with a wateriſh moiſture, they called ſome *Oedemaes* flatulent, others wateriſh; but alſo when they ſaw this ſame Phlegme often to turne into a certaine Plaiſter-like ſubſtance, they thought that hence proceeded another kinde of *Oedema*, which they expreſſed one while by the name of *Atheroma*, another while by *Steatoma*, and ſometime by *Melicerides*, as laſtly they called that kind of *Oedema* which is cauſed by putride and corrupt flegme, *Scrophulæ*. For we muſt obſerve that Phlegme ſometimes is naturall, and offends onely in quantity, whence the true *Oedema* proceeds; otherwhiles it is not naturall; and it becomes not naturall, either by admixtion of a ſtrange ſubſtance, as blood, Choler or Melancholy, whence ariſe the three kinds of *Oedema's* noted formerly by the way; or by the putredneſſe and corruption of its proper ſubſtance, whence the *Struma* and *Scrophulæ* proceed; or by concretion, whence kernells and all kinds of Wens, *Ganglia* and knots; or by reſolution, whence all flatulent and wateriſh Tumors, as the *Hydrocele*, *Pneumatocele* and all kinds of Dropſies.

By how many waies Phlegme becomes not naturall.

The cauſes of all *Oedema's* are the defluxion of a Phlegmaticke or flatulent

The Cauſes.

humor into any part, or the congeſtion of the ſame made by litle & litle in any part, by reaſon of the imbecillity thereof in concocting the nouriſhment, and expelling the excrement.

The ſignes. The ſignes are a colour whitiſh and like unto the skinne, a ſoft Tumor, rare and laxe by reaſon of the plentifull moiſture with which it abounds, and without paine, by reaſon this humor inferres no ſenſe of heate nor manifeſt cold; when you preſſe it with your finger the print thereof remaines, becauſe of the groſſeneſſe of the humor and ſlowneſſe to motion. **The prognoſticks.** *Oedema's* breed rather in winter than in the ſummer, becauſe winter is fitter to heape up Phlegme; they chiefly poſſeſſe the Nervous and Glandulous parts, becauſe they are bloodleſſe, and ſo cold and more fit by reaſon of their looſeneſſe to receive a defluxion; for the ſame cauſe bodyes full of ill humors, ancient, and not exerciſed, are cheifly troubled with this kinde of Tumor.

How Oedema's are terminated. An *Oedema* is terminated ſometimes by reſolution, but oftner by concretion, ſeldomer by ſuppuration, by reaſon of the ſmall quantity of heate in that humor.

A Symptomaticall *Oedema*, as that which followes upon a Dropſie or Conſumption, admits no cure unleſſe the diſeaſe be firſt taken away.

The intentions of curing Oedema's. The generall cure is placed in two things, that is, in evacuation of the conjunct matter, prohibiting the generation of the antecedent. Wee attaine to both cheifly by foure meanes.

The diet. The firſt truely by ordaining a fit manner of living and preſcribing moderation in the uſe of the ſixe things not naturall. Wherefore we muſt make choyſe of ſuch aire as is hote, dry and ſubtle; wee muſt preſcribe wine of a middle nature for his drinke; let the bread be well baked; let meates be appointed which may generate good blood, and theſe rather roſted than boyled. Let all fruites be forbidden, as alſo brothes and milke-meates; let him eate ſuch fiſh as are taken in ſtony rivers; the Patient ſhall obſerve mediocrity in feeding, but principally ſobriety in drinking, for feare of crudities; After meat let him uſe digeſtive powders, or common drige pouder; if his belly be not naturally looſe let it be made ſo by arte.

Exerciſe. Let the Patient uſe exerciſe before meate, ſo by litle and litle to ſpend this humor, and reſtore the native heate. Let him ſleepe litle, becauſe much ſleepe breedeth cold humors; let him avoyde griefe and ſadneſſe. And if he be of a weake body, let him abſteine from venery, leſt by another weakening by the uſe of venery added to his preſent infirmity, he fall into an uncureable coldneſſe, from whence a greater meaſure of crudity will ariſe. **What to be obſerved in the uſe of venery.** Otherwiſe, if the body be ſtrong and luſty, by ſuch exerciſes and the moderate uſe of venery it will be the more dryed and heated.

6. Epid. ſect. 5. ſen. 23. For ſo that ſentence of *Hippocrates* is to be underſtood; That venery is a cure for Phlegmaticke diſeaſes, as *Galen* in his commentaryes tells us. The Phyſition may performe the ſecond intention by turning his counſell to that part, from whence the ſpring of this Phlegmaticke humour flowes. For if the infirmity ariſe from the ſtomacke, or from any other part, the part from whence it comes muſt be ſtrengthened; if from the whole habite of the body, let attenuating, penetrating and opening medicines be preſcribed. Wee performe the third intention by evacuating the humor impact in the part with locall medicines varyed according to the foure times of the Tumor.

Lib. 2. ad Glauc. cap. 3. For *Galen* in the beginning and encreaſe preſcribeth a fomentation of *Oxycratum* uſed with a ſpunge. **A rowler.** But if ſo be that the *Oedema* be upon the Arme or Leg, a repelling rowler is very good, that is, ſuch an one as is brought from below upwards. So theſe medicines following are very fit for the ſame purpoſe, ℞. *Lixivij ex cineribus ſarmentorum, & caulium, an.* ℥iiij. *Tartari & Aluminis an.* ʒß, *aceti* ℥ij. mixe all together and make a decoction, wherein wet ſpunges and foment the place. Alſo you may uſe the following Cataplaſme, ℞, *farinæ hordei* ℥iiij. *coquantur in Lixivio communi, addendo pulveris nucis cupreſsi, corticum granatorum, balauſti. an.* ℥j. *Myrrhæ, Aloes, alum. an.* ʒß, *olei Myrtill.* ℥ij, *fiat Cataplaſma.* In the ſtate and declination you muſt uſe drying and reſolving medicines, as ℞. *Nucum cupreſsi, granat. ſumach, balauſti, an.* ℥j. *Salviæ, origan. calament. Hyſſopi, meliſſæ an. m.* j. *abſinthij, plantag. caudæ. equ. tapſi. barb. centinod. an. m. ſſ. alumi. tartar. & ſalis com. an.* ʒj. *coquanter cum lixivio*; foment it with a ſpung, then preſently apply this following Cataplaſme. ℞, *Rad. Brioniæ* ℥ij. *abſinth. plantage. centin. chamæm. meliloti, puleg. an. m. ſſ. coquantur in hydromelite, piſtentur, traijciantur, addendo pulveris roſ. rub. chamæm. melil. an.* ℥j. *fiat Cataplaſma.*

Laſtly, you may here with good ſucceſſe uſe reſolving emplaiſters and ointments, firſt heating or chafing the part by friction or fomentations aſwell moiſt as dry; otherwiſe emplaiſters will ſcarſly doe their duty, by reaſon of the great coldneſſe of the part, being not ſufficient of it ſelfe to aſſimulate the nouriſhment, or to expell the ſuperfluous and unprofitable humor. Let a fomentation be made with white wine, in which Sage, Roſmary, Time, Lavander, Chamomile and Melilote flowers, red Roſes, Orris roots, *Stæchos* and ſuch like have beene boyled, with a litle Vineger added thereunto. Quench hot brickes in the ſame decoction, and apply them wrapped in linnen clothes to the affected part, for ſo a vapour will breathe forth which hath an attenuating, pearcing, reſolving and ſtrengthening faculty. But you may in ſtead of the bricks fitly apply Hoggs or Oxe bladders, filled halfe full with the foreſaid decoction, and that hot. The frictions muſt be made with hot linnen clothes, for ſo the native heate together with the blood and ſpirits is recalled to the part, and fuliginous humors conteined under the ſkinne are reſolved, whereby the ſtrength of the part is in ſome ſort recovered.

What caution to be had in application of Emplaiſters.

CHAP. XVII.

Of the cure of flatulent and wateriſh Tumors.

I Formerly declared that not onely flatulent and wateriſh Tumors were comprehended under this word *Oedema*, but alſo ſuch as are bred of congealed Phlegme, as *Atheromata, Steatomata* and *Melicerides*. Flatulent or windy Tumors are cauſed by vapour and winde kept in or conteined ſometimes under the ſkinne, ſomewhiles under the membranes, as the *Perioſtium* and *pericranium*, whereupon enſues cruell torment by reaſon of the diſtention of theſe parts which are endued with moſt exquiſite ſenſe. Sometimes the Entrailes, as the ſtomacke and Guts are ſwollen and ſtretched out with winde, as in a Tympany.

In what places flatulencies may be gathered.

They in this differ from a true and legitimate *Oedema*, that when you lay your finger upon them and take it off againe, there remaines no ſigne of the preſſure thereof, becauſe they are diſtent by vapour and not by humor, for the vapour being preſſed returnes ſpeedily againe, as you may perceive by balles or bladders filled with winde.

In what flatulent tumors differ from a true *Oedema*.

The cauſe of ſuch Tumors is the weakeneſſe of the native heate, not being able eaſily to reſolve and waſte the Phlegme by which the windy Tumors are raiſed, for ſo the morning Sunne (which in ſome ſort reſembles our native heate) cannot reſolve the miſts diperſed in the aire; which at noone it eaſily reſolves into pure aire. Almoſt after the ſame manner our weaker heate ſtirs up vapours from that flegme it could not diſſolue, which vapours are the matter of inflations, or ſwellings. But oft times although the native heate be ſufficiently powerfull, yet becauſe the humor lyeth deepe, or is kept in by the thickneſſe of ſome membrane, tendon or Ligament, the ſtirred up vapour cannot exhale, whereby it comes to paſſe, that encreaſed by litle and litle it cauſes a Tumor.

The cauſes of flatulent Tumors.

The ſignes of ſuch a Tumor are a certaine renitency or reſiſtance perceived by preſſing it with your finger, and ſome times a noiſe as if you ſmit upon a drum,

The ſignes of ſuch Tumors.

eſpecially if much winde be conteined therein, ſuch as is often gathered together in the hollowneſſe of the belly, and in the ſpaces betweene the larger muſcles. The Tumor is neither red nor hot, but rather cold and white as in an *Oedema*. It often poſſeſſeth the joints, and eſpecially the knees, and it is very difficult to be reſolved. If ſuch flatulency be gathered together in the Guts, it cauſeth the winde Collicke, in which ſometimes the diſtention is ſo great that death enſues by reaſon of the renting or tearing the coats of the Guts.

Chap. XVIII.

Of the cure of a flatulent and wateriſh Tumor.

Diet. Things ſtrengthning the parts.

Medicines evacuating the conjunct matter.

WE ſhall chiefly and principally cure flatulent and wateriſh tumors by three meanes. Firſt by the ſame diet which wee preſcribed in an *Oedema*; then by ſtrengthening the parts appointed for concoction, as the ſtomacke & Liver, chiefly by the temperate uſe of Aromaticke things as *Diacuminum, Diacalamentha, Aromaticum caryophyllatum, Aromaticum Roſatum*, and the like, to be preſcribed according to good liking of the Phyſition which overſees the cure; laſtly by taking away of the conjunct matter by hot, drying and attenuating medicines which they call Carminative, that ſo the part being rarified the humor and flatulency therein conteined may be diſcuſſed and diſſipated. But remedies of this nature muſt be varied according to the variety of the parts; for ſome things are fit to be applyed to the ſtomacke, others to the Guts, others to the joynts, and others to the fleſhy parts; for the Collicke you muſt inject carminative gliſters, let reſolving *Sacculi* or Baggs be applyed, and cupping Glaſſes faſtened to the Navel; if an outward part be affected, we uſe fomentations, liniments, cheifly if paine torment; as alſo Cataplaſmes and Emplaiſters, as ℞ *Florum chamæm. melil. roriſmarini, roſar. rub. an. p.* j: *abſinth. hyſſopi, an. m. ij.* let them be boiled in Lye, adding a litle vineger for a fomentation to be uſed with ſpunges.

Galens fomentation.

Galen foments the part with Roſe-vinegar and a litle ſalt put thereto, and would have a ſpunge dipped therein to lye ſomewhat long upon the part. ℞. *Olei chamæm. aneth. rut. & liliorum, an.* ℥ß, *ceræ albæ* ℥vj; *aq. vitæ* ℥j, let them all be mixed together and make a liniment, with which anoint the part after the fomentation. ℞. *Farinæ fabar. orobi, an.* ℥iij, *coquantur in decocto pulegij, origani, calamenth. ſalviæ, addita pulverum chamæm. & melilot. an. m. ß. furfur. farinæ fab. & orobi, an.* ℥ij, *coquantur cum lixivio communi, addendo terebinth.* ℥iij, *oleor. aneth. & rut. an.* ℥ij; make an emplaiſter for the foreſaid uſe.

The emplaiſter of *Vigo* with Mercury, and without is very good for the ſame purpoſe. But you muſt note, that ſuch medicines muſt be applied to the part actually hot, and the ſame heat muſt be conteined and renewed by putting about it linnen clothes, bricks, bottles and ſuch like hot things.

Corroborating medicines

The Humor and flatulency which were kept ſhut up in the part being reſolved, the part muſt be ſtrengthened, leſt now and then it receive or generate the like matter: That may be done by the following fomentation and cataplaſme. ℞. *Nucum cupreſſi, corticum granat. ſumach. berberis, balauſt. an.* ʒj, *caudæ equin. arnogloſs. tapſi barb. abſinth. ſalviæ, roriſm. lavendul. an. m.* ß. *flor. chamæm. melil. roſar. anthos, an. p.* j. *alum. ſalis com. an.* ℥j, *bulliant omnia in æquis partibus aquæ fabrorum & vini auſteri*, make bagges for a fomentation, or uſe the decoction for the ſame purpoſe with a ſpunge. ℞, *Farinæ fab. hordei & lupin. an.* ℥ij. *terebinth. com.* ℥iiij, *pulver. radicis ireos, maſtic. an.* ʒß, *mellis com.* ℥ijß, of the foreſaid decoction as much as ſhall ſuffice, ſo to make a cataplaſme to the forme of a poultice liquid enough, let it be applyed hot to the affected part having uſed the fomentation before.

The ſignes of a wateriſh Tumor.

The ſignes of a wateriſh tumor are the ſame as of a flatulent; but over and beſides it ſhines, and at the preſſing with your fingers, there is hard a noyſe or murmure as of a bladder halfe filled with water.

Therefore the wateriſh tumor if it ſhall not yeeld to the forementioned reſolving medicines, the way muſt be opened with an inciſion knife, after the ſame manner, as we mentioned in a Phlegmon. For often times this kind of remedy muſt be neceſſarily uſed, not onely by reaſon of the contumacie of the humor which gives no place to the reſolving medicines, but alſo becauſe it is ſhut up in its proper cyſt or bagge, the thickneſſe of which fruſtrates the force of the reſolving medicines, neither ſuffers it to penetrate into the humor. As I ſome yeares agoe found by experience in a maid of 7. yeares old; which troubled with a *Hydrocele* or wateriſh rupture, to whom when I had raſhly applyed to diſſolve it reſolving medicines of all ſorts, at length I was forct to open it with my knife; not onely to evacuate the contained matter, but alſo that I might plucke out the bagge, which unleſſe it were cut up by the roote, would be a meane to cauſe a relapſe. *Iohn Altine* doctor of Phyſicke called me to this buſineſſe. *Iames Guilemeau* the Kings Chirurgion overſaw the cure.

Why a wateeriſh tumor muſt be opened with an inſtrument;

A Hiſtory.

Chap. XIX.

Of an Atheroma, Steatoma, and Meliceris.

ALthough theſe Tumors may be thought comprehended under one *genus* with other *Oëdematous* tumors, yet they differ as thus; that is, their matter is ſhut up in its bladder or bagge, as it were in a peculiar cell. But their difference amongſt themſelves is thus; the matter of the *Steatoma* as the name ſignifieth, is like nnto Tallow [for Στέας in Greeke ſignifieth Tallow, or ſeame] yet it oft times is found ſtuffed with other divers hard bodies, ſtony, bony or callous like unto the clawes of an hen. For *Philoxenus* reports that he ſometimes ſaw flyes in a *Steatoma* at the opening thereof, and ſuch other like things wholy diſſenting from the common matter of Tumors. The matter contained in an *Atheroma* is like to pappe, with which they feede little Children. A *Meliceris* containes matter reſembling honey in colour and conſiſtence; theſe Tumors appeare and riſe without any Inflammation going before them. Thus you ſhall know theſe Tumors; a *Steatoma* is harder than the other two, neither yeelds it to the preſſure of your finger, but when it once yeelds, it doth not ſpeedily and eaſily returne to its former figure, becauſe the matter is more groſſe; It is of the ſame colour as the skin, without paine, and of a longiſh figure. The *Meliceris* yeeds to the touch, as being a looſe and ſoft body, and as it is eaſily diſpoſed and diffuſed, ſo it quickly returnes to its former place and Tumor. It differs from the *Atheroma* in figure and ſubſtance. For it is more globous and of a ſubtiler and more ſhining matter, beſides alſo it takes up a large ſpace, and is more obſequious to the touch, and for the reſt, without paine. As for the manuall operation of the Chirurgion in their cure, it ſeemes to bee of no great conſequence of what ſort the matter is, whether reſembling tallow, honey, or pappe, for there is one ſimple manner of operation, which is, that you plucke away the conteined humor, as alſo the receptacle in which it is conteined. Yet you muſt note ſuch Tumors, ſometimes as it were hanging in the ſurface of the skin, are eaſily to bee mooved this way and that way; but other ſome againe deeper faſtned firmely cohere with the adjacent bodies, and theſe require an exquiſite hand and alſo induſtry for feare of a great flux of blood and convulſion by cutting a veine. There are many other kinds of Tumors, as the *Teſtudo* or Mole, the *Nata*, the *Glandula*, *Nodus*, *Botium*, *Lupia*, which as in matter (for they are all of a thicke, clammy and viſcous Phlegmaticke humor) ſo alſo in kinde they agree with an *Atheroma*, *Steatoma* and *Meliceris*. But alſo in theſe for the moſt part, when they are opened, you may ſee bodies of all ſorts farre different from the common matter of Tumors, as ſtones, chalke, ſande, coales, ſnailes, ſtrawes, or awnes of Corne, hey, horne, haires, fleſh both hard and ſpongious, griſtles, bones, whole creatures as well living as dead.

In what an *Atheroma*, *Steatoma*, and *Meliceris* differ,

Of Chirurgery to be uſed to theſe Tumors.

What the cauſe may be, that wee ſometimes finde *inſecta* in theſe Tumors.

The generation of which things (by the corruption & alteration of humors) ſhal not make us much to admire it, if we conſider, that as nature of all the ſeedes & elements of the wholegreat world, hath made man the Microcoſme or litle world, that he might be, as it were, the lively Image of that greater world; ſo in him, it being never idle in us, would have all the kindes of all motions and actions to ſhew themſelves, as long as matter for generation is not wanting. But becauſe there is little, or rather no mention of theſe tumors amongſt the anicents, we will brieſely ſhew the opinions of the later Writers concerning them.

What the *Teſtudo*, or *Talparia* is.

Now they ſay, the *Teſtudo* is a tumor contrary to nature, ſoft, diffuſed, or vaulted, or arched like a Tortois, ſometimes it ariſes in the head in forme of a Mole, and then it is called a Mole.

What the *Nata* is.

The *Nata* is a great and fleſhly tumor, not in ſhape unlike a Melon, or rather the fleſh of a mans buttockes, whence it may ſeeme to have had the name, unleſſe wee had rather ſay it had it, becauſe it more uſually breeds upon the buttocks, than upon any other part of the body.

What a *Glandula*.

The *Glandula* takes its denomination from an Acorne, called *Glans* in Latine, the which it ſomewhat reſembles in the compaſſe and forme of the tumor; or elſe becauſe it moſt commonly breeds in the Glandules, or Emunctories of mans body.

What *Nodus*.

The *Nodus* or knot, is a round tumor, hard and immoveable, named from a rope tied on a knot.

Guido Cauliacenſis affirmes knots commonly to grow in nervous bodies; but at this time they more uſually ariſe on the bones of ſuch as have the French diſeaſe.

Chap. XX.

Of the cure of Lupiæ, *that is, Wens, or Ganglions.*

What a *Ganglion* is.

A Wen or *Ganglion* is a tumor ſometimes hard, ſometimes ſoft, yet alwayes round, uſing to breed in dry, hard, and nervous parts. And ſeeing that ſome of the tumors mentioned before in the former Chapter, ſticke immoveable to the part to which they grow, becauſe they are contained in no cyſte, or bag; otherſome are moved up and down by the touch of your fingers, becauſe they are contained in a bag or bladder, it commonly comes to paſſe that Wens have their bladder wherein to containe them, and therefore we thinke fit, the rather more freely, and particularly to treate of their cure, becauſe they are more difficultly cured, eſpecially where they are inveterate and of long ſtanding.

The cauſes.

The primitiue cauſes of theſe are dull blowes, fallings from high places, ſtraines, and other ſuch like occaſions. But the antecedent and conjunct cauſes are the ſame with thoſe of an *Atheroma*, *Meliceris* and *Steatoma*.

Signes.

The deſcription formerly ſet downe, will furniſh you with the ſignes by which you may know when they are preſent; certainely from very ſmall beginnings they grow by little and little to a great bigneſſe, in the ſpace of ſixe or ſeaven yeares, ſome of them yeeld much to the touch, and almoſt all of them are without paine.

Their cure at the beginning.

You may hinder ſuch as are beginning and firſt growing, from encreaſe by ſomewhat a ſtrong and frequent rubbing with your fingers. For ſo their bagge or bladder, together with the ſkinne waxe thin, and the contained humor growes hot, is attenuated and reſolved. But if ſo you nothing prevaile, you muſt lie upon them with your whole hand, or a flatted peece of wood as heavy as you can, untill ſuch time as the cyſte or bagge be broken by your impreſſion; Then apply and ſtrongly binde unto it a a plate of lead, rubbed over with Quick-ſilver; for I have many times found by experience, that it hath a wonderfull force to reſolve and waſte the ſubject humor.

Plates of lead rubbed with Quick-ſilver.

But if the Wen be in ſuch a place in which you can make no ſtrong impreſſion, as in the face, cheſt, belly, and throat, let there be applied an Emplaiſter which hath a reſolving force, ſuch as this following hath; ℞, *gummi ammon. bdelij. galban. an.* ℥iij, *liqueſiant in aceto, & traijciantur per ſetaceum, addendo olei liliorum & lauri, an.* ℥j, *aquæ vitæ parum, pulveri, ireos, ſalis ammon. ſurphur. vivi, vitrioli romani, an* ʒß; let them be all incorporated together, and make an Emplaiſter according to Art. But if the tumor

A reſolving plaiſter.

tumor cannot be thus reſolved, it muſt be opened with a knife or cautery. And after the Eſchar is removed, and the bagge waiſted by Ægyptiacum, Mercury, and the like, the ulcer muſt be cleanſed, repleniſhed with fleſh, and cicatrized.

Things to waſt or conſume the bag.

Sometimes Wens grow to ſo great a maſſe, that they cannot be cured by the deſcribed remedies, wherefore they muſt be taken away by the roote, by your hand and inſtrument, if ſo be that there be no danger by reaſon of their greatneſſe, and ſo that they adhere not too cloſely to the adjacent parts, and if they be not too nigh to the greater veines and arteries; for it will be better in ſuch a cauſe to let them alone. This ſhal be your way to cut thẽ off, or take them away. A ſmal inciſion muſt be made even to the bladder, or bag, by which thruſt in a probe of a fingers thicknes, hollowed in the midſt, round at the end, and as long as neede ſhall require; then draw it many times about betweene the skinne and the bagge, even to the roote of the Wen, that ſo the skinne may be devided long wayes, then it will be requiſite to make another inciſion overthwarte, ſo that they may interſect each other like a croſſe; then preſently draw the skinne from the bladder, from the corners of the Wen, towards the roote, and that with your finger covered with a fine linnen cloath, or elſe with a Razor if neede require.

The manner to take away Wens.

But you muſt obſerve that in a Wen there are alwayes certaine veſſels, which are ſmall in the beginning, but much encreaſed in proceſſe of time, according to the encreaſe of the Wen, whereof they are as it were the rootes; wherefore if any *Hæmorrhagie* or fluxe of bloud happen, let it be ſtopped by binding the veſſels at their heads and roots, or make a ſtrait ligature at the roots of the Wen, with a peece of whipcord, or with a manytimes doubled thred, and let the ends hang forth untill it fall away of its owne accord. Neither will it be ſufficient to have cut away all this tumor, but alſo it will be fit to cut away portion of the skinne, wherewith the tumor was covered, and onely to leave ſo much as ſhall ſuffice to cover the part, then with a needle and threed draw together the lips of the inciſion, but in the interim let tents be put into the bottome of the ulcer untill it be perfectly cleſed, and the reſt of the cure be workemanlike performed, even to the cicatrizing thereof.

The Chirurgion *Collo* and I uſing this method, in the preſence of Maſter Dr. *Violanius* the Kings Phyſition, tooke away a Wen from Martiall *Colard*, the Major of Burbon; it hanged at his necke, as bigge as a mans head, and it weighed eight pounds; which made it ſo troubleſome and burdenſome to him, that he was forced to carry it bound up in a towell, as in a ſcrip.

A Hiſtory.

Verily if theſe kinde of tumors have a ſlender roote and broade top, they muſt be ſtraitly tied and ſo cut off. But it is very difficult and full of dangerous chance to take away ſuch Wens as are ſeated in the necke, neare unto the Iugular veines, theſe under the armeholes, in the groines, and ſuch as are under the ham; by reaſon of the deadly force of ſuch ſymptomes, as may thence ariſe. We can onely conjecture, not certainely ſay what kind of matter may be contained in them. We can onely know of what ſort it is, when by inciſion it is preſented to our ſight. Yet in ſuch as are very hard and doe much reſiſt the touch, there are often found matters, which in conſiſtence may be reſembled to little ſtones, or pebles.

What Wens to be cured by ligature.
Which dangerous to cure.

I being on a time called to open the body of a great Lady, found in one of her breaſts a body which might equall the bigneſſe of an Hens egge, hard, and compact like a rough peble; it was held, whilſt ſhe lived, both by the Phyſitions and Chirurgions to be a *Cancer*, becauſe this hardneſſe was very painefull to her, when it was but gently preſſed downe.

A Hiſtory.

The matter of a Wen is ſometimes taken for a *Cancer.*

But alſo ſome few yeares agon, I being called to the cure of a very honeſt woman, which was troubled with the ſame diſeaſe, ſtrongly withſtood the Phyſitions and Chirurgions affirming it to be a *Cancer*, for the tumor had taken no deepe roote, the habite of the part was not changed from the native colour, the veines about it were not ſwollen, neither was there any other convincing ſigne of a *Cancer*. For this ſame woman had her courſes at their due and uſuall time, and was well liking, and had a good colour in her face and body, was free from all ſort of paine, unleſſe when you preſſed downe the part affected. Beſides thenceforward the tumor grew not at all; no other evill accident befell her, yea verily ſhe lives merrily, and well both in body and minde.

Another *Hiſtory.*

How you may know a Wen from a *Cancer.*

Chap.

CHAP. XXI.

Of a Ganglion *more particularly ſo called.*

What a *Ganglion* properly ſo called is.

The cauſes.

THere are alſo certaine ſmall tumors of the kinde of *Lupiæ* or Wens, which grow on diverſe parts of the body, but chiefely on the wreſts of the hands, and anckles of the feete, being called by a more particular name *Ganglia*; they appeare on the top of the skinne, neither doe they ever lie deepe. The cauſe of them is either the imbecilitie of a Nerve or Tendon got by wreſting, extenſion, a blow, labour, or other ſuch like cauſe. Through which occaſion the alimentary juyce which flowed to theſe parts, ſeeing it can neither be concocted, nor aſſimulated into the proper ſubſtance, is converted into an humor of the like nature cold, and groſſe; which in continuance of time heaping it ſelfe up by little and little about the fibers, and the very ſubſtance of the tendon, concretes into a tumor.

What *Ganglia* may not be cured with iron Inſtruments.

It is not fit to uſe any iron inſtrument to theſe *Ganglia* which poſſeſſe the tendons and joints, but onely apply *Ammoniacum* and *Galbanum* diſſolved in Vinegar and *Aqua vitæ*: as ℞ *gummi ammon. & ſagapeni in aqua vitæ diſſolutorum, ana.* ℥j. *coquantur ſuper cineres calidos ad formam emplaſtri, ſub finem adde ſulphuris vivi ſubtiliter pulveriſati*, ℥ß, *fiat empl. ad uſum.* Alſo the Emplaſter of *Vigo* with double *Mercury* would be good for the ſame purpoſe.

The tumor ſoftened by theſe remedies, muſt be wrought, rubbed, or preſſed, ſo long, untill the bladder or bagge be broken under your fingers, which I have divers times done; then it will be expedient preſently to apply and binde hard thereunto a plate of lead rubbed with Quickſilver, which may waſte and conſume the remainder of the tumor.

Sometimes there are *Ganglia* ſeene hanging by a ſmall roote, as it were a ſtring; wherefore they muſt be tied with a ſtring at the roote, and every day twitched harder and harder, till ſuch time as they fall off. The reſt of the cure may be eaſily performed by the common rules of Art.

CHAP. XXII.

Of the Strumæ *or* Scrophulæ, *that is, the Kings-Evill.*

What the *Scrophula* or Kings-Evill is.

THe *Scrophulæ* are œdematous tumors ariſing in the glandulous parts, as the breaſts, armeholes, groines, but chiefely in the glandules of the neck: They appeare either one or many, according to the quantity of that matter from whence they proceede, commonly contained in their proper cyſte, or bagge, as *Atheromaes*, *Steatomaes*, and *Melicerides* are.

Their materiall cauſe.

How they differ from other glandulous tumors.

They are made of a groſſe, cold, viſcide, and phlegmaticke matter with ſome admixture of malancholy. They differ from other glandulous tumors; firſt in number, for moſt uſually there appeare many of them united together, ſpringing from ſomewhat a deeper roote than glandulous tumors doe; ſome of them are moveable, otherſome woven with the neighbouring nerves, remaining unremoveable.

Gangliæ appeare fewer in number, and are without paine; but *Scrophulæ* oftentimes are painefull, eſpecially when they waxe hot by putrefaction; ſo that ſometimes they degenerate into cancerous ulcers, not to be touched by inſtruments, nor acride medicines.

Their cure by diet.

Phlegmaticke, Melancholike, and gluttonous perſons, and ſuch as are accuſtomed to feede on cold and moiſt nouriſhments, as fiſh and cold water, and leade a ſedentarie and idle life, are ſubject to the *Scrophulæ*. They are cured by a moſt ſlender diet, for ſo the native heate by want of nouriſhment turned upon the materiall cauſe of ſuch like tumors, waſts it.

And they are cured by purging of the ſuperfluous humors, and alſo by application of emollient reſolving, and ſuppuratine topicke medicines, after this following manner. ℞, *Mucaginis alth. fænugr. & ficuum ping. an.* ℥ij, *olei liliorum, & chamæm. an.* ℥j, *pinguedinis anſeris & axungiæ porci* ʒß, *Terebinth. Ven.* ʒiß, *ammoniaci, & galbani in aceto diſſolutorum an.* ℥j, *ceræ novæ quantum ſatis, fiat cerotum ſecundum artem ad modum diachyli magni.*

Emollient and reſolving medicines.

The ointment for the French diſeaſe, and the Emplaiſter of *Vigo* with *Mercury*, are excellent for this purpoſe, eſpecially if we continue ſo long, untill the Patient come to Salivation, for ſo Nature will disburden it ſelfe of the humor, generating the *Scrophulæ*, which I have ſometimes tried with happy ſucceſſe. ℞, *Emplaſtri diachyl. alb. & mag. ceroti æſopi deſcriptionis Philagrij, ana.* ℥ij. *Terebinth. claræ* ℥j, *olei liliorum parum, fiat emplaſtrum ſatis molle.* But if the *Scrophulæ* cannot by this meanes be reſolved, but as it oft times happens, tend to ſuppuration, you muſt uſe ſuppuratives, as ℞, *rad. alth. & liliorum, an.* ℥iij, *coquantur in aqua communi, piſtentur, trajectis adde capitum alliorum ſub cineribus coctorum* ℥iij, *olei liliorum, & ping. anſeris & anat. an.* ℥ß, *farinæ ſeminis lini quantum ſatis, formetur cataplaſma.*

Suppuratives.

Here we muſt admoniſh the Chirurgion, that he open not the *Scrophula* before that all the contained humor be fully and perfectly turned into *pus* or matter; otherwiſe the reſidue of the humor will remaine crude, and will ſcarſe in a long time be brought to maturation; which precept muſt be principally obſerved in the *Scrophulæ*, and alſo ſometimes in other abſceſſes, which come to ſuppuration. For we muſt not as ſoone as any portion of the contained humors appeares converted into *pus*, procure and haſten the apertion. For that portion of the ſuppurated humor, cauſes the reſt ſooner to turne into *pus*, which you may obſerve in inanimate bodies. For fruits which begin to periſh and rot, unleſſe we preſently cut away the putrifying part, the reſidue quickly becomes rotten; there is alſo another reaſon; The native heate is the efficient cauſe of ſuppuration; it therefore (the ſore being opened) diminiſhed and weakened by reaſon of the diſſipation of the ſpirits, evacuated together with the humor, will cauſe the remaining portion of the humor, not to ſuppurate, or that very hardly, and with much difficulty. Yet if the tumified part be ſubject, by its owne nature, to corruption and putrefaction, as the fundament; if the contained matter be maligne, or criticall, it will be farre better to haſten the apertion.

A note to be obſerved in opening *Scrophulous* tumors.

Naturall heate the cauſe of ſuppuration.

There is alſo another way of curing the *Scrophulæ*, which is performed by the hand. For ſuch as are in the necke, and have no deepe roots, by making inciſion through the skin, are pulled and cut away from theſe parts with which they were entangled. But in the performance of this worke, wee take ſpeciall care, that we doe not violate or hurt with our inſtrument, the jugular veines, the ſleepy arteries, or recurrent nerves. If at any time there be danger of any great effluxe of bloud, after they are plucked from the skin, they muſt be tied at their roots, by thruſting through a needle and thred, and then binding the thred ſtrait on both ſides, that ſo bound they fall off by themſelves by little and little without any danger. The remainder of the cure may be performed according to the common rules of Art.

The Chirurgicall manner of curing *Scrophulæ*.

Chap. XXIII.

Of the Feaver which happens upon an œdematous Tumor.

HAving ſhewed all the differences of œdematous tumors, it remaines that we briefely treate of the Symptomatical feaver, which is ſometimes ſeene to happen upon them. This therefore retaining the motion of the humor by which it is made, is commonly of their kinde, which they name Intermitting Quotidians. Now the fit of a Quotidian comes every day, and in that repetition continues the ſpace of eighteene houres; the reſidue of the day it hath manifeſt intermiſſion.

How an intermitting Quotidian happens upon œdematous tumors.

The cauſe of a Quotidian fea.

The primitive cauſes of this feaver are, the coldneſſe and humidity of the aire encompaſſing

compaſſing us, the long uſe of cold meates and drinkes, and of all ſuch things as are eaſily corrupted, as Summer fruites, crude fiſhes, and laſtly, the omiſſion of our accuſtomed exerciſe.

The antecedent cauſes are a great repletion of tumors, and theſe eſpecially phlegmaticke. The conjunct cauſe, is phlegme putrefying in the habite of the body, and firſt region thereof without the greater veines.

The Signes:

The ſignes of this feaver are drawne from three things; as firſt naturall; for this Feaver or Ague chiefely ſeazes upon theſe which which are of a cold and moiſt temper, as Old-men, Women, Children, Eunuches, becauſe they have abundance of phlegme; and it invades Old-men by its owne nature, becauſe their native heate being weake, they cannot convert their meates, then taken in a ſmall quantity, into laudable bloud, and the ſubſtance of the parts. But it takes children by accident, not of its ſelfe, and the owne nature, for children are hot and moiſt; but by reaſon of their voracitie, or greedineſſe, and their violent, inordinate, and continuall motion after their plentifull feeding, they heape up a great quantity of crude humors fit matter for this feaver; whereby it comes to paſſe, that fat children are chiefely troubled with this kinde of feaver, becauſe they have the paſſages of their bodies ſtraite and ſtopped; or becauſe they are ſubject to Wormes, they are troubled with paine, by corruption of their meate; whence ariſeth a hot diſtemper by putrefaction, and the elevation of putride vapours, by which the heart being moleſted, is eaſily taken by this kinde of feaver.

How children come to be ſubject to Quotidian feavers.

From things not naturall, the ſignes of this feaver are thus drawne. It chiefely takes one in Winter, and the Spring, in a cold and moiſt Region, in a ſedentary and idle life, by the uſe of meates, not onely cold and moiſt, but alſo hot and dry, if they be devoured in ſuch plenty, that they overwhelme the native heate.

How phlegmaticke humors happen to be generated by hot and dry meats.

For thus wine, although it be by faculty and nature, hot and dry, yet taken too immoderately, it accumulates phlegmaticke humors, and cauſes cold diſeaſes. Therefore drunkenneſſe, gluttony, crudity, bathes, and exerciſes preſently after meate, being they draw the meats as yet crude into the body and veines, and to conclude, all things cauſing much phlegme in us, may beget a Quotidian feaver. But by things contrary to nature, becauſe this feaver uſually followes cold diſeaſes, the Center, Circumference, and Habit of the body being refrigerated.

The Symptomes of quotidians.

The ſymptomes of this feaver are, the paine of the mouth of the ſtomacke, becauſe that phlegme is commonly heaped up in this place, whence followes a vomiting, or caſting up of phlegme; the face lookes pale, aud the mouth is moiſt without any thirſt, often times in the fit it ſelfe; becauſe the ſtomacke flowing with phlegme, the watery and thinner portion thereof continually flowes up into the mouth and tongue, by the continuitie of the inner coate of the ventricle common to the gullet and mouth.

The manner of the pulſe and heate in a Quotidian.

It takes one with coldneſſe of the extreame parts, a ſmall and deepe pulſe, which notwithſtanding in the vigour of the fit, becomes more ſtrong, great, full, and quicke. Iuſt after the ſame manner, as the heate of this feaver at the firſt touch appeares mild, gentle, moiſt, and vaporous; but at the length it is felt more acride, no otherwiſe than fire kindled in greene wood, which is ſmall, weake, and ſmokie at the firſt; but at the length when the moiſture being overcome, doth no more hinder its action, it burnes and flames freely.

Criticall ſweats.

The urine.

The Patients are freed from their fits with ſmall ſweats, which at the firſt fits breake forth very ſparingly, but more plentifully when the *Criſis* is at hand; the urine at the firſt is pale and thicke, and ſometimes thinne, that is, when there is obſtruction. But when the matter is concoct, as in the ſtate, it is red: if at the beginning of the fit they caſt up any quantity of phlegme by vomite, and that fit be terminated in a plentifull ſweate, it ſhewes the feaver will not long laſt; for it argues the ſtrength of nature, the yeelding and tenuitie of the matter flying up, and the excretion of the conjunct cauſe of the feaver.

Why Quotidians are oft times long.

In to what diſeaſes a quartaine uſually changes.

A Quotidian feaver is commonly long, becauſe the phlegmaticke humor being cold, and moiſt by nature, is heavie and unapt for motion; neither is it without feare of a greater diſeaſe, becauſe oft times it changes into a burning, or quartaine feaver, eſpecially if it be bred of ſalt Phlegme; for ſaltneſſe hath affinity with bitterneſſe, wherefore by aduſtion it eaſily degenerates into it, ſo that, it neede not ſeeme very ſtrange, if ſalt Phlegme by aduſtion turne into choler, or Melancholy. Thoſe who recover of a quotidian Feaver, have their digeſtive faculty very weake; wherefore they muſt not be nouriſhed with ſtore of meats, nor with ſuch as are hard to digeſt. In a quotidian the whole body is filled with crude humors, whereby it comes to paſſe that this Feaver oft times laſts ſixty dayes. But have a care, you be not deceived, and take a double tertian for a quotidian, becauſe it takes the patient every day as a quotidian doth. Verily it will be very eaſie to diſtinguiſh theſe Feavers by the kinde of the humor, and the propriety of the Symptomes and accidents; beſide, quotidians commonly take one in the evening, or the midſt of the night, as then when our bodies are refrigerated by the coldneſſe of the aire cauſed by the abſence of the Sunne. Wherefore then the cold humors are moved in us, which were bridled a litle before by the preſence and heate of the Sunne. But on the contrary, double tertians take one about noone. The ſhortneſſe and gentleneſſe of the fit, the plentifull ſweat breaking forth, the matter being concocted, cauſes us to thinke the quotidian ſhort and ſalutary.

How to diſtinguiſh a quotidian from a double tertian.

Diet.

The Cure is performed by two meanes; to wit Diet and Pharmacy. Let the Diet be ſlender and attenuating, let the patient breathe in a cleere aire moderately hot and dry; let his meats be bread well baked, cocke or chicken brothes in which have bin boiled the roots of Parſly, Sorrell and the like.

When the uſe of ſpiced and ſalted meats are fit.

Neither at ſome times will the uſe of hot meats, as thoſe which are ſpiced and ſalted, be unprofitable, eſpecially to ſuch as have their ſtomacke & liver much cooled. Let him eate Chickins, Mutton, Partridge and ſmall Birds, river fiſhes and ſuch as live in ſtony waters fryed or broiled, reare Egges and ſuch like. Theſe fruits are alſo good for him, Raiſons, ſtewed Prunes, Almonds and Dates. Let his drinke be ſmall white wine mixed with boyled water. Moderate exerciſes will be good, as alſo frictions of the whole body: ſleepe taken at a fitting time, and proportioned to waking, ſo that the time of ſleepe fall not upon the time of the fit; for then it hurts very much; for calling the heat to the inner parts, it doubles the raging of the feaveriſh heat inwardly in the bowells.

When ſleepe is hurtfull.

For the paſſions of the minde, the patient muſt be merry, and comforted with a hope ſhortly to recover his health. It ſeemes not amiſſe to ſome, at the comming of the fit to put the feet and Legs into hot water, in which Chamomill, Dill, Melilote, Marjerome, Sage, and Roſemary have beene boyled.

Medicines.

The Medicines ſhall be ſuch Syrupes as are called digeſtive and aperitive, as Syrupe of Wormewood, Mints, of the five opening rootes, *Oxymel* with a decoction of Chamomill, Calamint, Melilot, Dill and the like, or with common decoctions. The Purgatives ſhall be *Diaphænicon*, *Electuarium Diacarthami*, *Hiera picra*, Agaricke; Turbith; of which you ſhall make potions with the water of Mints, Balme, Hyſſope, Sage, Fennell, Endive or the like, *Pillulæ aureæ* are alſo good. Theſe purgatives ſhall ſometimes be given in forme of a bole with Sugar, as the Phyſition being preſent ſhall thinke moſt fit and agreeable to the nature of the Patient.

Care muſt be had of the ſtomacke.

Vomits.

About the ſtate of the diſeaſe, you muſt have a care of the ſtomake and principally of the mouth thereof, as being the chiefe ſeate of Phlegme; wherfore it will be good to anoynt it every other day with oyle of Chamomill mixed with a litle white wine, as alſo to unlade it by taking a vomit of the juice of Raddiſh, and much *Oxymel*, or with the decoction of the ſeeds and roots of *Aſarum* and Chamomill; and Syrupe of vineger will be very good, eſpecially at the beginning of the fit, when nature and the humors begin to move; for an inveterate quotidian, though you can cure it by no other remedy, nothing is thought to conduce ſo much as one dram of old Treacle taken with Sugar in forme of a Bole, or to drinke it diſſolved in *Aqua vitæ*.

The uſe of Treacle in an inveterate quotidian.

Chap. XXIIII.

Of a Scirrhus, *or an hard Tumor proceeding of Melancholy.*

What a true and legitimate *Scirrhus* is,

What an illegitimate *Scirrhus* is.

HAving ſhewed the nature of Tumors cauſed by blood, choler and Phlegme, it remaines we ſpeake of theſe, which are bred of a Melancholike humor; Of theſe there are ſaid to be foure differences. The firſt is of a true and legitimate *Scirrhus*, that is, of an hard Tumor endued with litle ſenſe, and ſo commonly without paine, generated of a naturall Melancholike humor. The ſecond is, of an illegitimate *Scirrhus*, that is, of an hard Tumor inſenſible, and without paine, of a Melancholike humor concrete by too much reſolving and refrigerating. The third is of a cancrous *Scirrhus* bred by the corruption and aduſtion of the Melancholike humor. The fourth of a Phlegmonous, *Eryſipelous* or *Oedematous Scirrhus*, cauſed by Melancholy mixed with ſome other humor. The cauſe of all theſe kinds of Tumors is a groſſe, tough and tenacious humor concrete, in any part. But the generation of ſuch an humor in the body happens either of an ill and irregular, diet, or of the unnaturall affects of the liver or ſpleene, as obſtruction; or by ſuppreſſion of the *Hæmorrhoides* or Courſes.

The ſignes.

Prognoſticks.

The ſignes are hardneſſe, renitency, a blackiſh colour, and a dilatation of the veines of the affected part with blackiſhneſſe, by reaſon of the aboundance of the groſſe humor. The illegitimate or baſtard *Scirrhus* which is wholy without paine and ſenſe, and alſo the cancerous, admit no cure, and the true legitimate ſcarſe yeeld to any. Thoſe which are brought to ſuppuration, eaſily turne into cancers and fiſtulaes; theſe tumors though in the beginning they appeare litle, yet in proceſſe of time they grow to a great bignes.

Chap. XXV.

Of the Cure of a Scirrhus.

Diet.

Lib. 2. Ad Glauconem.

THe Cure of a *Sirrhus* cheefly conſiſts of three heads. Firſt, the Phiſition ſhall preſcribe a convenient diet, that is, ſober and moderate in feeding, tending to humidity, and indifferent heate; for his manner of life, let it be quiet and free from all perturbation of anger, greiſe and ſadneſſe, as alſo abhorring the uſe of venery. The ſecond is placed in the evacuation of the antecedent matter, as by Phlebotomy, if need require, and by purging, by procuring the *hæmorrhoids* in men and the courſes in women; let purgations be preſcribed of *Diacatholicon*, *Hyera*, *diaſenna*, polipody, *Epythymum* according to the minde of the learned Phyſition. The third conſiſts in the convenient uſe of Topicke medicines, that is, emollient at the beginning, and then preſently reſolving, or rather ſuch as are mixed both of reſolving & emollient faculties, as *Galen* teaches; for by the uſe of only emollient things there is danger of putrefaction and a *Cancer*, and only of reſolving there is feare of concretion the ſubtiler part being reſolved, and the groſſer ſubſiding.

Emollients.

The emollient ſhall be thus: ℞. *Rad. alth. lib. ſ. rad. liliorum* ℥iij. *coquantur in aqua com. piſtentur, traijciantur per ſetaceum, addendo olei chamæm. & lilior. an.* ℥ij. *æſipi humidæ* ℥ß. *emplaſtri diachyl. alb. cum oleo liliorum diſſoluti* ℥iij, *ceræ albæ quantum ſit ſatis, fiat cerotum.* Or ℞. *gummi ammoniaci, galb. bdellij, ſtyracis liquidæ in aceto diſſolutorum, an.* ℥j. *diachyl. mag.* ℥jß, *olei liliorum, & axungiæ anſeris, an.* ℥j. *ceroti æſip. deſcriptione Philagr.* ℥ij. *liqueſcant omnia ſimul, ceræ quantum ſit ſatis, ut inde fiat cerotum ſatis molle.* When you have ſufficiently uſed emollient things, fume the Tumour with ſtrong Vinegar and *Aqua vitæ* poured vpon

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a peice of a Milſtone, flint or bricke heated very hot; for ſo the mollified humor will be rarified, attenuated, and reſolved; then ſome while after renew your emollients, and then againe apply your reſolvers to waſte that which remaines, which could not be performed together and at once; for thus *Galen* healed a Scirrhus in *Cercilius* his ſonne. Goats dung is very good to diſcuſſe Scirrhous tumors; but the Emplaſter of *Vigo* with a double quantity of Mercury is effectuall above the reſt, as that which mollifies, reſolves and waſts all tumors of this kinde.

Lib. 2. ad Glau.

The efficacy of the Empl. of Vigo with Mercury.

CHAP. XXVI.

Of a Cancer *already generated.*

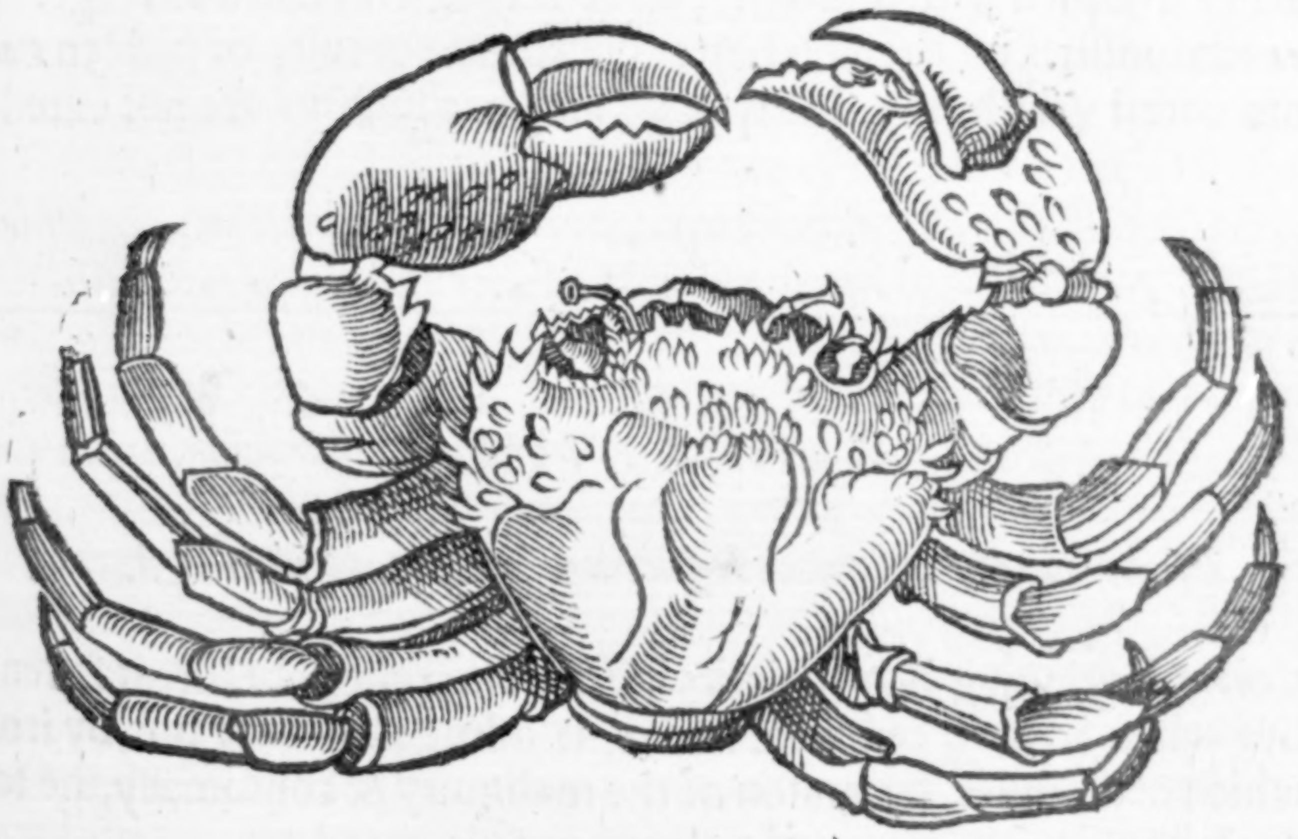
A *Cancer* is an hard Tumor, rough and unequall, round, immoveable, of an aſh, or livide colour, horrid by reaſon of the veines on every ſide, ſwollen with blacke blood, and ſpred abroad to the ſimilitude of the ſtretched out legs and clawes of a Crabb. It is a tumor hard to be knowne at the firſt, as that which ſcarſe equalls the bigneſſe of a Chicke, or *Cicer*, after a little time it will come to the greatneſſe of a Haſell Nut, unleſſe peradventure provoked by ſomewhat too acride medicines it ſodainly encreaſe; being growne bigger, according to the meaſure of the encreaſe it torments the patient with pricking paine, with acride heat, the groſſe blood reſiding in the veines growing hot, and inferring a ſenſe like the pricking of Needles, from which notwithſtanding the Patient hath oft times ſome reſt. But becauſe this kinde of Tumor by the veines extended & ſpred about it like clawes and feet, being of a livide and aſh colour, aſſociated with a roughneſſe of the skin and tenacity of the humor, repreſents, as it were, the toothed clawes of the Crab, therefore I thought it not amiſſe here to inſert the Figure of the Crabb, that ſo the reaſon both of the name and thing might be more perſpicuous.

What a *Cancer* is.

The nature of the paine.

The reaſon of the name.

The figure of the Crabb, called Cancer *in Latine.*



CHAP. XXVII.

Of the cauſes, kinds, and prognoſticks of a Cancer.

Here we acknowledge two cauſes of a *Cancer*, the antecedent, and conjunct. The antecedent cauſe depends upon the default of irregular diet, generating and heaping up groſſe and feculent blood; by the morbificke affection

The cauſes of a *Cancer*.

The cauſes of a not ulcerated Cancer.

of the Liver diſpoſed to the generation of that bloud; by the infirmity or weakeneſſe of the ſpleene in attracting and purging the bloud; by the ſuppreſſion of the Courſes or Hæmorrhoids, or any ſuch accuſtomed evacuation. The conjunct cauſe is that groſſe and melancholicke humor ſticking and ſhut up in the affected part, as in a ſtraite, That malancholicke bloud which is more milde, and leſſe maligne, onely encreaſed by a degree of more fervide heat, breeds a not ulcerated *Cancer*, but the more maligne and acride cauſes, an ulcerated. For ſo the humor which generated Carbuncles, when it hath acquired great heat, acrimony, and malignitie, corrodes, and ulcerates the part upon which it alights. A *Cancer* is made more fierce and raging by meates inflaming the bloud, by perturbations of the minde; anger, heate, and medicines too acride, oiely, and emplaiſticke, unfitly applied, both for time and place.

The ſorts and differences of Cancers.

Aetius lib. 16.

The parts moſt ſubject to Cancers.

What Cancers one muſt not undertake truely to cure.

Amongſt the ſorts or kindes of *Cancers*, there be two chiefely eminent, that is, the ulcerated or manifeſt *Cancer*, and the not ulcerated, or occult. But of *Cancers* ſome poſſeſſe the internall parts, as the Guts, Wombe, Fundement; others the externall, as the Breaſts; alſo there is a recent, or late bred *Cancer*, and alſo an inveterate one. There is one ſmall, another great; one raging and maligne, another more milde. Every *Cancer* is held almoſt incurable, or very difficult to be cured, for it is a diſeaſe altogether maligne, to wit, a particular Leproſie. Therefore ſaith *Aëtius*, a *Cancer* is not eaſily ſtaied untill it hath eaten even to the innermoſt of the part which it poſſeſſes. It invades women more frequently than men, and thoſe parts which are laxe, rare, fungous, and glandulous, and therefore opportune to receive a defluxion of a groſſe humor, ſuch are the Breaſts and all the emunctories of the noble parts. When it poſſeſſes the Breaſts, it often cauſes inflammation to the armeholes, and ſends the ſwelling ever to the glandules thereof; whereupon the Patients doe complaine that a pricking paine even peirces to their hearts. But this ſame paine alſo runs to the clavicles, and even to the inner ſide of the ſhoulderblades and ſhoulders. When it is encreaſed, and covers the noble parts, it admits no cure but by the hand; but in decaied bodies, whoſe ſtrength faile, eſpecially if the *Cancers* be inveterate, we muſt not attempt the cure, neither with inſtrument, nor with fire, neither by too acride medicines, as potentiall Cauteries; but we muſt onely ſeeke to keepe them from growing more violent, and from ſpreading further, by gentle medicines, and a palliative cure. For thus many troubled with a *Cancer*, have attained even to old age. Therefore *Hippocrates* admoniſhes us, that it is better not to cure occult, or hidden *Cancers*; for the Patients cured (ſaith he) doe quickly die, but ſuch as are not cured live longer.

Chap. XXVIII.

Of the Cure of a Cancer *beginning, and not yet ulcerated.*

Lib. 2. ad Glau.

A *Cancer* beginning is oft hindred from encreaſing, before it faſten its roots, but when it hath once encreaſed, it admits no cure but by iron, as that which contemnes, by reaſon of the malignity & contumacy, the force of all medicines. *Galen* affirmes, he cured a *Cancer* not ulcerated.

Now that cure is performed by medicines, purging melancholy, by Phlebotomy, when the ſtrength and age of the Patient may well endure it, by ſhunning all things, which may breed ill and fæculent bloud. The diſtemper of the Liver muſt firſt be corrected, the Spleene ſtrengthened, as alſo the part affected; in men the Hæmorrhoides, in women their Courſes muſt be procured.

Diet,

Threfore thicke and muddy wines, vinegar, browne bread, cold hearbes, old cheeſe, old and ſalted fleſh, Beefe, Veniſon, goate, hare, garlicke, onions and muſtard, and laſtly all acride, acide and other ſalt things, which may by any meanes incraſſate the blood, and inflame the humors, muſt be eſchewed. A cooling & humecting diet muſt be preſcribed; faſting eſchewed, as alſo watchings, immoderate labours, ſorrow, cares, and mournings; let him uſe priſans, and in his brothes boile Mallowes, Spinach, Lettuce, Sorrell, Purſlaine, Succory, Hops, Violets, Borradge, and the foure cold ſeeds. But let him feede on Mutton, Veale, Kid, Capon, Pullet, young Hares, Partridges, Fiſhes of ſtony rivers, reare Egges; and uſe white wine, but moderately for his drinke.

The part affected with the *Cancer* muſt be gently handled, and not overburdened by over hard, or heavy things, or by too ſolide, or fat emplaiſters; on the contrary gentle and mitigating medicines muſt be uſed; applying alſo at certaine times ſuch things as reſiſt venome or poyſon, as Treacle and Mithridate. Aſſes milke is exceeding fit to aſſwage the acrimony of the cancorous humor. Therefore it muſt not only be taken inwardly, but alſo applied outwardly to the cancrous ulcer, making thereof a fomentation.

How to handle the cancorous part.

Antidotes. Aſſes milke.

CHAP. XXIX.

Of the cure of an ulcerated Cancer.

AN Vlcerated *Cancer* hath many ſignes common with that which is not ulcerated, as the roundneſſe of the tumor, the inequality, roughneſſe, and paine; to the judgement of the eye, the tumour ſeemes ſoft, but it is hard to the touch; the Vlcer is filthy, with lips thicke, ſwolne, hard, knotty, turned out, and ſtanding up, having a horrid aſpect, and caſting forth ichorous, filthy, and carionlike filth, ſometimes blacke, ſometimes mixed with rotten filth, and otherwhiles with much bloud. This kinde of ulcer is maligne, rebellious, and untractable, as that which contemnes milde remedies, and becomes more fierce, by acride and ſtrong; the paine, feaver, and all the ſymptomes being encreaſed, from whence the powers are dejected, the waſting and conſumption of the body followes, and laſtly death. Yet if it be ſmall, and in a part which may ſuffer amputation, the body being firſt purged, and bloud drawne, the ſtrength of the Patient not diſſwading, it will be convenient to uſe the hand, and to take hold of, and cut away whatſoever is corrupt, even to the quicke, that no feare of contagion may remaine, or be left behind. The amputation finiſhed, the bloud muſt not be preſetly ſtopped, but permitted to flow out in ſome meaſure, yea verily preſſed forth all about it, that ſo the veines ſwollne with blacke and melancholicke bloud may be disburdened. When you have taken a ſufficient quantity of bloud, the place muſt be ſeared with an actuall cautery. For that will ſtrengthen the part affected, draw forth the venenate quality, and alſo ſtay the defluxion. Then muſt you apply mitigating medicines, & procure the falling away of the Eſchar. To conclude, that which remaines, muſt be performed according to the cure of other ulcers. Now we know and underſtand that all the *Cancer* is cut away, and all the malignity thereof extinct, when the ulcer caſts forth laudable matter, when that good fleſh begins to grow by little and little, like to the graines of a Pomeganate, the pricking paine, and all the ſymptomes being aſſwaged. Yet the cure of an ulcerated *Cancer*, which ſhall poſſeſſe the lips may be more happily and mildly performed, no cauſticke medicine being applied after ſection, ſo alſo that ſcarſe any deformity will be left, when it is cicatrized. Which new and never formerly tried, or written of way, as farre as I know, I found and performed in a man of fifty yeares old. Doctor *Iohn Altine*, a moſt learned Phyſition being called to Counſell, *Iames Guillemeau*, and Maſter *Euſtachius*, the Kings Chirurgions, and *Iohn Le Ieune* the Duke of Guiſe his moſt worthy Chirurgion being preſent.

The Signes.

How and where a *Cancer* may be cut away.

What to be obſerved in cutting away a *Cancer*.

The benefit of applying a cautery after amputation of the *Cancer*.

Signes that a *Cancer* is well taken away.

The way is this; The *Cancer* muſt be thruſt through the lips on both ſides, above and below with a needle and threed, that ſo you may rule and governe the *Cancer* with your left hand, by the benefit of the threed (leaſt any portion thereof ſhould ſcape the inſtrument in cutting) and then with your Sizers in the right hand, you may cut it off all at once, yet it muſt be ſo done, that ſome ſubſtance of the inner part of the lippe, which is next to the teeth, may remaine, (if ſo be that the *Cancer* be not

A new and obſerveable way of taking away a *Cancer* from the lippe.

not growne quite through) which may ſerve as it were for a foundation to generate fleſh to fill up the hollowneſſe againe. Then when it hath bled ſufficiently, the ſides & brinkes of the wound muſt be ſcarified on the right and lift ſides, within, and without, with ſomewhat a deepe ſcarification, that ſo (when we would draw together the ſides and lips of the wound, by that manner of ſtitching, which is uſed in an hare-lippe) we may have the fleſh more pliant and tractable to the needle and threed. The reſidue of the cure muſt be performed juſt after the ſame manner as we uſe in hare-lips; of which we ſhall treate hereafter.

Chap. XXX.

Of the Topicke medicines to be applied to an unlcerated, and not ulcerated Cancer.

Repelling medicines,

WE at the beginning uſe repercuſſive medicines, ſuch as are the juyces of Nightſhade, Plantaine, Henbane, Lettuce, Sorrell, Houſelecke, Water Lentill or Duckes-meate, Knotgraſſe, Pomegranates, and the like. Alſo *oleum roſarum omphacinum*, the powders of Sumach, Berberies, Litharge, Ceruſe, Burnt-lead, *Tutia*, Quickſilver, and the like. Of which you may compoſe Fomentations, Liniments, Ointments, Cataplaſmes, Emplaiſters. *Emplaſtrum Diacalcitheos* diſſolved with juice of Nightſhade, and oile of Roſes is very fit for not ulcerated *Cancers*. *Pompholix*, or *Tutia*, waſhed in juice of Nightſhade, or Plantaine, is very good for ulcerated *Cancers*. Beſides this following medicine is very cōmendable.

℞, *Lytharg. & ceruſ. an.* ℥j, *terantur in mortario plumb. cum oleo roſar. donec reducantur ad conſiſtentiam linimenti vel unguenti*; and there may be uſe of a reſolving and repercuſſive ointment, as ℞, *plumbi uſti loti, pomphol. thuris, an.* ʒijß, *abſinth. pontic.* ℥ß, *olei roſarum* ℥iij, *ceræ* ʒvj, *ſucci ſolani, quantum ſufficit ad unguenti craſsitudinem.* They very much commend *Theodorickes* Emplaiſter to aſſwage the paine of ulcerated *Cancers*.

Theodoricks Emplaiſter.

℞, *Olei roſ. ceræ alb. an* ℥ijß, *ſucci granat. & ſolani, an.* ℥ij, *ceruſæ lotæ* ℥j, *plumbi uſti, loti, & tuthiæ præpar. an.* ℥ß, *thuris, maſtich. an.* ʒij, *fiat empl. molle.* This following ointment I have often uſed with good ſucceſſe.

℞, *Therciac. veter.* ℥j, *ſucci cancrorum* ℥ß, *ſucci lactucæ & olei roſar. an.* ℥iß, *vitel. ovorum ſub cinerib. coct.* ij, *camphor.* ʒß, *piſtentur omnia in mortario plumb. & fiat unguentum.*

℞, *ſpum. argent. axungiæ porci recentis, ceræ alb. an lib.* ß, *olei boni* ℥viij, *vitel. ovorum aſſat.* iiij, *fiat ungnent. ſervetur uſui.* And when you will vſe it, mixe it with a little ointment of Roſes. I have alſo mitigated great paine by applying Leaches to an unulcerated *Cancer*, in that part where the torment was moſt vehement, by diſburdening the part of ſome portion of the maligne humor; which ſame thing I have done by application of young Whelpes, or Kitlings, or Pidgions, or Chickins cut long wayes, and preſently applied to the ulcer, and now and then changed, as ſoone as their heat ſeemes diſſolved; and others applied for the naturall heat in an anodyne or mitigating medicine. *John Baptiſta Theodoſius* in his Epiſtles, writes, that a cataplaſme of the herbe *Eryſimum*, or Cadlocke, being beaten, is very good to be applied to a *Cancer* not ulcerated; but if the *Cancer* be ulcerated, he boiles this ſame herbe in *Hydromel*, and ſo by injections and lotions clenſes the ulcer, and mitigates the paine. If the *Cancer* affect the wombe, the patient feeles the pricking of the paine in the groines above the *pecten*, and in the Kidneyes, & is often troubled with a difficulty of making water; but when it is ulcerated it poures forth filth or matter exceeding ſtinking & carion-like, and that in great plenty; the filthy vapour of which carryed up to the heart and braine, cauſes often ſwounding. Now to mitigate the paines of ſuch like places, the following medicines are of good uſe.

Leaches.

The application of whelps, chickins, &c.

Epiſt. 21. The eſtate of *Eryſimum*.

The ſignes of the *Cancer* in the wombe.

℞. *Mucag. ſemin. lini, fænugr. extract. in aqua roſar. & plantaginis quod ſatis eſt*; Of this being warme make a fomentation.

℞. *Rad. Athea,* ℔ß. *coquatur in hydromelite, piſtetur, & traijciatur, addendo olei roſar. parum, fiat Cataplaſma.* Alſo you ſhall make divers peſſaries according to the different kinds of paine; alſo make injections of the juice of Plantaine, Knotgraſſe, Lettuce, Purſlaine, mixed together, and agitated or laboured in a leaden mortar with a litle

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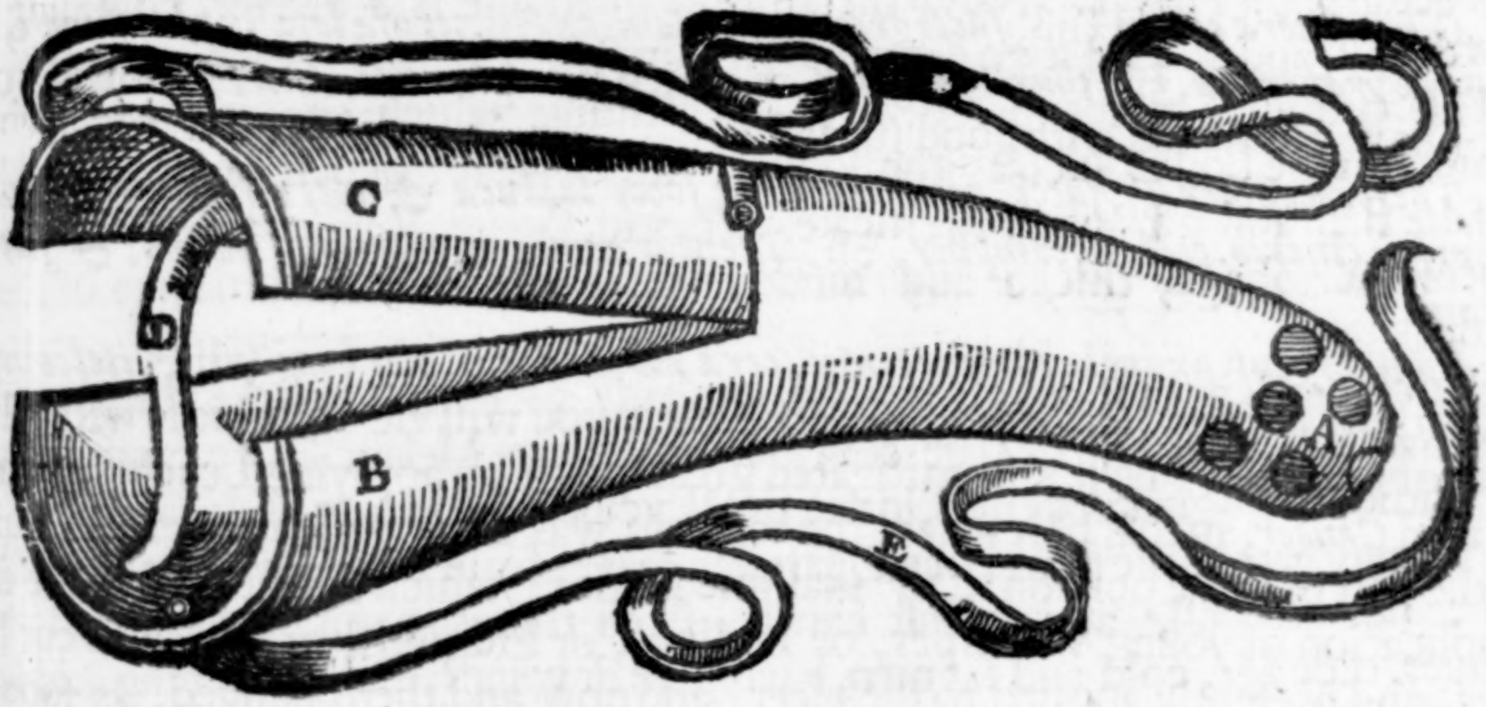
oyle of Roſes; for this kinde of medicine is commended by *Galen*, in every kinde of ulcerated *Cancer*. Alſo this following water is very profitable, and often approved by me. ℞. *Stercoris bubuli* ℔ .iiij. *herbæ Roberti*, *plantag*, *ſempervivi*, *hyoſcyami*, *portulac. lactuc. endiv. an. m.* j. *cancros fluviatiles*, *num. xij.* let them be all beaten together and diſtilled in a leaden Alembicke, keepe the liquor for uſe and with it make often injection into the part; or if the ſite of the part will permit, let the cancerous ulcers be waſhed therewith, and pledgets of lint ſteeped therein be applyed and renewed ever and anon; for ſo the acrimony and force of the inflammation is retunded, and the paine aſſwaged. *Galen* beats into powder river Crabs burnt; the powder mixed with oyntment of Roſes is moſt profitably applyed upon lint to cancerous ulcers.

Lib. 9. Simpl.

Lib. 4. de comp. med. ſecundum gen.

It will be very convenient to put into the necke of the wombe the following inſtrument made of Golde, or Silver, whereby the cancerous filth may have free and ſafe paſſage forth, and the filthy and putredinous vapours may more eaſily breathe forth. Therefore let it be hollow quite through; ſome five or ſixe fingers long, and about the bignes of ones Thumbes, at the upper end, perforated with many holes whereby the filth may have paſſage forth. Let the outer or lower end be ſome two fingers thicke in the circumference, make it with a neat ſpringe, that may hold that end open more, or leſſe according to the Phyſitions minde; let there be two ſtrings, or laces put unto it, by which being tyed before and behinde to the rowler, with which the woman ſhall girt her loynes, the Device may be kept from falling, as you may ſee in the following figure.

A Vent made like a Peſſary for the wombe affected with a Cancerous ulcer.



A. *Shewes the upper end perforated with five or ſixe holes.*
B. *The Lower end.*
C. *That part of the end which is opened by the ſpringe, which is marked with the letter* D.
E E. *The ſtrings, or laces.*

Neither is that remedy for not ulcerated cancers to be contemned, which conſiſts of a plate of lead beſmeared with quick-ſilver; for *Galen* him ſelfe teſtifies that lead is a good medicine for maligne and inveterate ulcers. But *Guido Cauliacenſis* is a witneſſe of ancient credit and learning, that ſuch plates of lead rubbed over with quick-ſilver, to ſuch maligne ulcers as contemne the force of other medicines, are as it were Antidotes, to waſte and overcome their malignity and euill nature. This kinde of remedy, when it was preſcribed by that moſt excellent Phyſition *Hollerius*, who commanded me to apply it to the Lady of *Montigni* maide of Honor to the Queene mother, troubled with a *Cancer* in her left breſt, which equalled the bignes of a Wallnut, did not truely throughly heale it, yet notwithſtanding kept it from further growth.

Lib. 9. ſimp.

Plates of Lead

A Hiſtory.

Wherefore at the length growing weary of it, when ſhee had committed her ſelfe to a certaine Phyſitian boldly promiſing her quicke helpe, ſhe tryed with loſſe of her life, how dangerous, and diſadvantagious that cure of a *Cancer* was, which is undertaken according to the manner of healing other ulcers; for this Phyſition, when he had caſt away this our medicine, and had begun the cure with mollifying, heating and attractive thing, the paine, inflammation and all the other Symptoms encreaſing, the Tumor grew to that bignes; that being the humor drawne thither could not be conteined in the part it ſelfe, it ſtretched the breſt forth ſo much, that it broke it in the middle, juſt as a Pomegranate cleaves when it comes to its full maturity; whereupon an immoderate fluxe of blood following, for ſtaying whereof hee was forcte to ſtrew cauſticke pouders thereon; but by this meanes the inflammation and paine becomming more raging, and ſwoundings comming upon her, ſhee poore Soule in ſteed of her promiſed health, yeelded up her ghoſt in the Phyſitions boſome.

Chap. XXXI.

Of the Feaver which happeneth in Scirrhous Tumors.

Why a quartaine happens upon ſcirrhous tumors.

SVch a Feaver is a Quartaine, or certainly comming neare unto the nature of a Quartaine, by reaſon of the nature of the Melancholike humor of which it is bred. For this ſhut up in a certaine ſeat in which it makes the tumor, by communication of putride vapours heats the heart above meaſure, and enflames the humors conteined therein, whence ariſes a Feaver. Now therefore a quartaine is a Feaver comming every fourth day, and having two dayes intermiſſion.

The primitive cauſes thereof are, theſe things which encreaſe Melancholicke humors in the body, ſuch as the long eating of pulſe, of courſe and burnt bread, of ſalte fleſh and fiſh, of groſſe meates as Beefe, Goate, Veniſon, olde Hares, olde Cheeſe, Cabbage, thicke and muddy wines and other ſuch things of the ſame kinde.

The antecedent cauſes are a heaped up plenty of Melancholicke humors abounding over all the body. But the conjunct cauſes are Melancholike humors putriſying without the greater veſſels, in the ſmall veines and habite of the body.

The ſignes.

We may gather the ſignes of a Quartaine feaver from things which they call naturall, not naturall, and againſt nature; from things naturall, for a cold and dry temper, olde age, cold and fat men, having their veines ſmall, and lying hidde, their ſpleene ſwolne and weak, are uſually troubled with quartaine Feavers.

Why they are frequent in Autumne.

Of things not naturall; this Feaver, or Ague is frequent in Autumne, not onely becauſe, for that it is cold and dry, it is fit to heape up Melancholike humors; but cheifly by reaſon that the humors by the heate of the preceding Summer are eaſily converted into aduſt Melancholy, whence far worſer and more dangerous quartaines ariſe, than of the ſimple Melancholike humor; to conclude, through any cold or dry ſeaſon in a region cold and dry, men that have the like Temper eaſily fall into quartaines; if to theſe a painefull kinde of life full of danger and ſorrow doth accrew.

Of things contrary to nature; becauſe the fitts take one with painefull ſhaking, inferring as it were the ſence of breaking or ſhaking the bones; further it taketh one every fourth day with an itching over the whole body, and oft times with a thinne skurfe and puſtles eſpecially on the legges; the pulſe at the beginning is litle, ſlow, and deepe, and the urine alſo is then white and wateriſh, inclining to ſomewhat a darke colour.

In the declination when the matter is concocted the urine becomes blacke, not occaſioned by any maligne Symptome or preternaturall exceſſe of heat, (for ſo it ſhould be deadly) but by excretion of the conjunct matter. The fit of the Quartaine continues 24 houres, but the intermiſſion is 48 houres. It often takes its originall from an obſtruction, paine, and *Scirrhus* of the Spleene, and the ſuppreſſion of the courſes and Hæmorroides.

Prognoſticks.

From what diſeaſes a quartain frees one.

Quartaines taken in the Summer are for the moſt part ſhort, but in the Autumne long, eſpecially ſuch as continue till Winter. Thoſe which come by ſucceſſion of any diſeaſe of the Liver, Spleene, or any other precedent diſeaſe, are worſe than ſuch as are bred of themſelves, and commonly end in a Dropſie. But thoſe which happen without the fault of any bowells, and to ſuch a patient, as will be governed by the Phyſition in his Diet, infer no greater harme, but free him from more grievous and long diſeaſes, as Melancholy, the Falling ſickneſſe, Convulſions, Madneſſe, becauſe the Melancholy humor, the author of ſuch diſeaſes, is expelled every fourth day by the force of the fit of the Quartaine.

Diet.

How much vomiting prevailes to cure a Quartaine

Medicine.

A Quartane Feaver, if there be no error committed, commonly exceeds not a yeare, for otherwiſe ſome Quartanes have beene found to laſt to the twelfth yeare according to the opinion of *Auicen*: the Quartane beginning in Autumne is oft times ended in the following ſpring; the Quartane which is cauſed by aduſt blood or choler or Salt flegme is more eaſily and ſooner cured, than that which proceeds from an aduſt Melancholy humor; becauſe the Melancholy humor, terreſtriall of its owne nature, and harder to be diſcuſſed than any other humor, is againe made by aduſtion (the ſubtiller parts being diſſolved and the groſſer ſubſiding) more ſtubborne, groſſe, maligne and acride. The cure is wholy abſolved by two meanes, that is, by Diet and medicines. The Diet ought to be preſcribed, contrary to the cauſe of the Feaver in the uſe of the ſixe things not naturall, as much as lyes in our power. Wherfore the Patient ſhall eſchew Swines fleſh, flatulent, viſcide and glutinous meats, fenny fowles, ſalt meats and Veniſon, and all things of hard digeſtion. The uſe of white wine indifferent hot and thin is convenient to attenuate and incide the groſſe humor, and to move urine and ſweat; yea verily at the beginning of the fit a draught of ſuch wine will cauſe vomiting, which is a thing of ſo great moment, that by this one remedy many have been cured. Yet if we may take occaſion and opportunity to provoke vomit, there is no time thought fitter for that purpoſe than preſently after meate; for then it is the ſooner provoked, the fibers of the Stomach being humected & relaxed, and the ſtomach is ſooner turned to vomiting, whereupon followes a more plentifull, happy and eaſie evacuation of the Flegmatique and Cholericke humor, and leſſe troubleſome to nature: and of all the crudities with which the mouth of the ventricle abounds in a Quartaine, by reaſon of the more copious afflux of the Melancholike humor, which by his qualities cold and dry, diſturbes all the actions and naturall faculties. Moreouer exerciſes and frictions are good before meat; ſuch paſſions of the minde as are contrary to the cauſe from which this Feaver takes his originall, are fit to be cheriſhed by the patient; as Laughter, Ieaſting, Muſique, and all ſuch like things full of pleaſure and mirth. At the beginning the patient muſt be gently handled and delt withall, and we muſt abſtaine from all very ſtrong medicines untill ſuch time, as the diſeaſe hath beene of ſome continuance. For this humor, contumacious at the beginning when as yet nature hath attempted nothing, is againe made more ſtubborne, terreſtriall and dry, by the almoſt fiery heat of acride medicines. If the body abound with bloud, ſome part thereof muſt be taken away by opening the Median or Baſilick veine of the left arme, with this caution, that if it appeare more groſſe and blacke, we ſuffer it to flow more plentifully; if more thin, and tinctured with a laudable red Colour, that we preſently ſtay it. The matter of this Feaver muſt be ripened, concocted and diminiſhed with the Syrrupes of *Epithymum*, of *Scolopendrium*, of Mayden hayre, Agrimony, with the waters of Hopps, Bugloſſe, Borage and the like. I ſincerely proteſt, next unto God, I have cured very many quartaines by giving a potion of a little Treakle diſſolved in about ſome two ounces of *Aqua vitæ*; alſo ſometimes by two or three graines of muske diſſolued in Muskadine, given at the beginning of a particular fitt towards the generall declination of the diſeaſe, after generall purgations the humor and body being prepared, and the powers ſtrong; And certainly an inveterate Quartaine can ſcarce ever be diſcuſſed unleſſe the body be much heated with meates and medicines. Therefore it is not altogether to be diſproved which many ſay, that they have driven away

way a quartaine by taking a draught of wine every day as ſoone as they came forth of their bed, in which ſome leaves of Sage had bin infuſed all the night. Alſo it is good a little before the fit to anoint all the ſpine of the backe with oyles heating all the nervous parts, ſuch as are the oyle of Rue, Wallnuts, of the Peppers, mixing therewith a little Aqua vitæ. but for this purpoſe the oyle of *Caſtoreum* which hath beene boyled in an apple of *Coloquintida*, the Kernells taken out, uppon hot coles to the conſumption of the halfe part, mixing therewith ſome little quantity of the powders of Pepper, Pelitory of Spaine and *Eupherbium*, is excellent. Certainly ſuch like Inunctions are good not onely to mitigate the vehemency of the terrible ſhaking, but alſo to provoke ſweats; for becauſe by their humid heat they diſcuſſe this humor being dull and rebellious to the expulſive facultie, for the Melancholy is as it were the droſſe and mudde of the bloud. Therefore if on the contrary the Quartaine feaver ſhall be cauſed by aduſt choler, we muſt hope for and expect a cure by refrigerating and humective medicines, ſuch as are Sorrell, Lettuce, Purſlane, brothes of the decoction of Cowcumbers, Gourds, Mellons and Pompions. For in this caſe if any uſe hot medicines, he ſhall make this humor moſt obſtinate by the reſolving of the ſubtiller parts. Thus *Trallianus* boaſts that hee hath cured theſe kinds of Quartane Feaver by the onely uſe of refrigerating *Epithemaes* being often repeated a little before the beginning of the fit. And this is the ſumme of the Cure of true and legitimate intermitting Feavers. That is, of thoſe which are cauſed by one ſimple humor, whereby the Cure of thoſe which they call baſtard intermitting Feavers, may be eaſily gathered and underſtood; as which are bred by a humor impure and not of one kinde, but mixt or compoſed by admixture of ſome other matter; for example, according to the mixture of diverſe humors Flegmatique and cholericke, the medicines muſt alſo be mixt, as if it were a confuſed kinde of Feaver of a *Quotidian* and *tertian*; it muſt be cured by a medicine compoſed of things evacuating flegme and choler.

What quartaines muſt be cured with refrigerating things.

What baſtard agues are and how they muſt be cured.

Chap. XXXII.

Of an Aneuriſma, *that is, the dilatation, or ſpringing of an Artery, veine, or Sinnew.*

What it is.

AN *Aneuriſma* is a ſoft tumor yeelding to the touch, made by the bloud and ſpirit powred forth under the fleſh and Muſcles, by the dilatation or relaxation of an Artery. Yet the author of the definitions ſeemes to call any dilatation of any venous veſſell by the name of an *Aneuriſma*. *Galen* calls an *Aneuriſma* an opening made of the *Anaſtomaſis* of an Artery. Alſo an *Aneuriſma* is made, when an Artery that is wounded cloſeth too ſlowly, the ſubſtance which is above it being in the meane time agglutinated, filled with fleſh and cicatrized, which doth not ſeldome happen in opening of Arteries unſkilfully performed and negligently cured; therefore *Aneuriſmaes* are abſolutely made by the *Anaſtomaſis*, ſpringing, breaking, *Eroſion*, and wounding of the Arteries. Theſe happen in all parts of the body, but more frequently in the throat, eſpecially in women after a painfull travaile. For when as they more ſtrongly ſtrive to hold their breath, for the more powerfull expulſion of the birth, it happens that the Artery is dilated and broken, whence followes an effuſion of bloud and ſpirits under the skin. The ſignes are, a ſwelling one while great, another ſmall, with a pulſation and a colour not varying from the native conſtitution of the skinne. It is a ſoft tumor, and ſo yeelding to the impreſſion of the fingers that if it peradventure be ſmall, it wholy vaniſheth, the Arterious bloud and ſpirits flying backe into the body of the Artery, but preſently aſſoone as you take your fingers away, they returne againe with like celerity. Some *Aneuriſmaes* doe not onely when they are preſſed, but alſo of themſelves make a ſenſible hiſſing, if you lay your eare neare to them, by reaſon of the motion of the vitall ſpirit ruſhing with great violence through the ſtraitnes of the paſſage.

In what parts they chiefly happen.

Prognoſticke.

A Hiſtory.

Aneuriſmaes muſt not raſhly be opened.

Wherefore in *Aneuriſmaes* in which there is a great rupture of the Artery, ſuch a noyſe is not heard, becauſe the ſpirit is carryed through a larger paſſage. Great *Aneuriſmaes* under the Arme pits, in the Groines and in other parts wherein there are large veſſells, admit no cure, becauſe ſo great an eruption of blood and ſpirit often followes uppon ſuch an inciſion, that death prevents both art and Cure. Which I obſerved a few yeares agoe in a certaine preiſt of Saint *Andrewes* of the Arches, M. *Iohn Maillet* dwelling with the chiefe Preſident *Chriſtopher de Thou*. Who having an *Aneuriſma* at the ſetting on of the ſhoulder about the bignes of a Wall-nut, I charged him, hee ſhould not let it be opened, for if it did, it would bring him into manifeſt danger of his life, and that it would be more ſafe for him, to breake the violence thereof with double clothes ſteeped in the juyce of Night-ſhade and Houſelike, with new and whayey cheeſe mixt therewith: Or with *Vnguentum de Bolo* or *Emplaſtrum contra rupturam* and ſuch other refrigerating and aſtringent medicines, if hee would lay upon it a thin plate of Lead, and would uſe ſhorter breeches that his doublet might ſerve to hold it too, to which hee might faſten his breeches inſtead of a ſwathe, and in the meane time he ſhould eſchew all things which attenuate and inflame the blood, but eſpecially he ſhould keepe himſelfe from all great ſtraining of his voyce. Although he had uſed this Diet for a yeare, yet he could not ſo handle the matter but that the tumor increaſed, which he obſerving goes to a Barber, who ſuppoſing the tumor to be of the kinde of vulgar inpoſtumes, applies to it in the Evening a Cauſticke cauſing an Eſchar ſo to open it. In the Morning ſuch an abundance of blood flowed forth from the tumor being opened, that he therewith aſtoniſhed, implores all poſſible ayde, and bidds that I ſhould be called to ſtay this his great bleeding, and he repented that he had not followed my directions. Wherefore I am called, but when I was ſcarce over the threſhould, he gave up his ghoſt with his blood.

How they muſt be cured.

Theſe of the inward parts incurable.

A Hiſtory.

Wherefore I diligently admoniſh the young Chirurgion that hee do not raſhly open *Aneuriſmas* unleſſe they be ſmall in an ignoble part, and not indued with large veſſells, but rather let him performe the cure after this manner. Cut the skinne which lyes over it untill the Artery appeare, and then ſeparate it with your knife from the particles about it, then thruſt a blunt and crooked needle with a thred in it under it, binde it, then cut it off and ſo expect the falling off, of the thred of it ſelfe whiles nature covers the orifices of the cut Artery with new fleſh, then the reſidue of the cure may be performed after the manner of ſimple wounds. The *Aneuriſmaes* which happen in the internall parts are uncurable. Such as frequently happen to thoſe who have often had the unction and ſweat for the cure of the French diſeaſe, becauſe the blood, being ſo attenuated and heated therewith that it cannot be contayned in the receptacles of the Artery, it diſtends it to that largeneſſe as to hold a mans fiſt; Which I have obſerved in the dead body of a certaine Taylor, who by an *Aneuriſma* of the Arterious veine ſuddenly whileſt hee was playing at Tennis fell downe dead, the veſſell being broken: his body being opened I found a great quantity of blood powred forth into the Capacity of the Cheſt, but the body of the Artery was dilated to that largeneſſe I formerly mentioned, and the inner Coate thereof was bony. For which cauſe within a while after I ſhewed it to the great admiration of the beholders in the Phyſitions Schole whileſt I publiquely diſſected a body there; the whilſt he lived ſaid he felt a beating and a great heate over all his body by the force of the pulſation of all the Arteryes, by occaſion whereof hee often ſwounded. Doctor *Sylvius* the Kings profeſſor of Phyſicke at that time forbad him the uſe of Wine, and wiſhed him to vſe boyled water for his drinke, and Crudds and new Cheeſes for his meate, and to apply them in forme of Cataplaſmes upon the grieved and ſwolne part. At night he uſed a ptiſan of Barley meale and Poppy-ſeedes, and was purged now and then with a Clyſter of refrigerating and emollient things, or with Caſſia alone, by which medicines hee ſaid hee found himſelfe much better. The cauſe of ſuch a bony conſtitution of the Arteries by *Aneuriſmaes* is, for that the hot and fervid blood firſt dilates the Coates of an Artery, then breakes them; which when it happens, it then borrowes from the neighbouring bodies a fit matter to reſtore the looſed continuity thereof.

This matter whileſt by litle and litle it is dried and hardened, it degenerats into a

Griſtely or elſe a bony ſubſtance, juſt by the force of the ſame materiall and efficient cauſes, by which ſtones are generated in the reines and bladder. For the more terreſtriall portion of the blood is dried and condenſed by the power of the unnaturall heat contayned in the part affected with an *Aneuriſmae*; whereby it comes to paſſe that the ſubſtance added to the dilated and broken Artery is turned into a body of a bony conſiſtence. In which the ſingular providence of nature, the handmaide of God is ſhewed, as that which, as it were by making and oppoſing a new wall or bancke, would hinder and breake the violence of the raging blood ſwelling with the abundance of the vitall ſpirits; unleſſe any had rather to refer the cauſe of that hardneſſe to the continuall application of refrigerating and aſtringent medicines. Which have power to condenſate and harden, as may not obſcurely be gathered by the writings of *Galen*. But beware you be not deceived by the forementioned ſignes; For ſometimes in large *Aneuriſmaes* you can perceive no pulſation, neither can you force the blood into the Artery by the preſſure of your fingers, either becauſe the quantity of ſuch blood is greater than which can be contayned in the ancient receptacles of the Artery, or becauſe it is condenſate and concrete into Clods, whereupon wanting the benefit of ventilation from the heart, it preſently putrifies; Thence enſue great paine, a Gangren, and mortification of the part, and laſtly the death of the Creature.

Lib. 4. Cap. ult. de praſ. ex pulſu.

A Caution in the knowing of *Aneuriſmaes*

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OF PARTICULAR TUMORS AGAINST NATURE.

THE EIGHT BOOKE.

The Preface.

BEcauſe the Cure of diſeaſes muſt be varied according to the variety of the temper, not onely of the body in generall, but alſo of each part thereof; the ſtrength, figure, forme, ſite, and ſence thereof being taken into conſideration: I thinke it worth my paines, having already ſpoken of Tumors in Generall, if I ſhall treate of them in particular which affect each part of the body, beginning with thoſe which aſſayle the head. Therefore the Tumor either affects the whole head, or elſe onely ſome particle thereof, as the Eyes, Eares, Noſe, Gumms and the like. Let the *Hydrocephalos*, and *Phyſocephalos* be examples of thoſe tumors which poſſeſſe the whole head.

CHAP. I.

Of an Hydrocephalos *or watry tumor which commonly affects the heads of Infants.*

What it is. THe Greekes call this diſeaſe *Hydrocephalos*, as it were a Dropſie of the Head, by a wateriſh humor; being a diſeaſe almoſt peculiar to Infants newly borne. **The cauſes.** It hath for an externall cauſe the violent compreſſion of the head by the hand of the Midwife or otherwiſe at the birth, or by a fall, contuſion and the like. For hence comes a breaking of a veine or Artery, and an effuſion of the blood under the skinne. Which by corruption becomming whayiſh, laſtly, degenerateth into a certen wateriſh humor. It hath alſo an inward cauſe, which is the abundance of ſerous and acride blood, which by its tenuity and heat ſweats through the Pores of the veſſells, ſometimes betweene the Muſculous ſkinne of the head and the *Pericranium*, **Differences by reaſon of place** ſometimes betweene the *Pericranium* and the ſkull, and ſometimes betweene the ſkull and the membrane called *Dura mater*, and otherwhiles in the ventricles of the braine.

Signes. The ſignes of it, contained in the ſpace betweene the Muſculous ſkinne and the *Pericranium*, are a manifeſt tumor without paine, ſoft, and much yeeelding to the preſſure of the fingers. The Signes, when it remayneth betweene the *Pericranium* and the skull, are for the moſt part like the forenamed, unleſſe it be that the Tumor is a little harder, and not ſo yeelding to the finger, by reaſon of the parts betweene it and the finger; And alſo there is ſomewhat more ſence of paine. But when it is in the ſpace betweene the skull and *Dura mater*, or in the ventricles of the Braine or the whole ſubſtance thereof, there is a dulneſſe of the ſences as of the ſight and hearing; the tumor doth not yeeld to the touch, unleſſe you uſe ſtrong impreſſion, for then it ſincketh ſomewhat downe, eſpecially in infants newly borne; who have their ſculls almoſt as ſoft as waxe, and the junctures of their Sutures laxe, both by nature, as alſo by accident, by reaſon of the humor conteined therein moiſtening and relaxing all the adjacent parts; the humor conteined here lifts up the Scull ſomewhat more high, eſpecially at the meetings of the Sutures, which you may thus know, becauſe the Tumor being preſſed, the humor flyes backe into the ſecret paſſages of the braine.

To conclude, the paine is more vehement, the whole head more ſwollen, the forehead ſtands ſomewhat further out, the eye is fixt and immoveable, and alſo weepes by reaſon of the ſerous humor ſweating out of the braine.

A Hiſtory.

Veſalius writes that hee ſaw a girle of two yeares old, whoſe head was thicker than any mans head by this kinde of Tumor, and the Scull not bonie, but membranous, as it uſeth to be in abortive birthes, and that there was nine pound of water ran out of it.

Abucraſis tells that he ſaw a child whoſe head grew every day bigger by reaſon of the watery moiſture conteined therein, till at length the tumor became ſo great, that his necke could not beare it neither ſtanding nor ſitting, ſo that hee died in a ſhort time. I have obſerved and had in cure foure children troubled with this diſeaſe, one of which being diſſected after it died, had a braine no bigger than a Tennis Ball. But of a Tumor and humor conteined within under the *Cranium*, or Scull, I have ſeene none recover; but they are eaſily healed of an externall Tumor.

Therefore whether the humor lye under the *Pericranium*, or under the muſculous skin of the head, it muſt firſt be aſſailed with reſolving medicines, but if it cannot be thus overcome, you muſt make an inciſion, taking heede of the Temporall Muſcle, and thence preſſe out all the humor, whether it reſemble the waſhing of fleſh newly killed, or blackiſh blood, or congealed or knotted blood, as when the tumor hath beene cauſed by contuſion; then the wound muſt be filled with dry lint, and covered with double boulſters, and laſtly bound with a fitting ligature.

CHAP. II.

Of a Polypus, *being an eating diſeaſe in the Noſe.*

The reaſon of the name.

THe *Polypus* is a Tumor of the Noſe againſt nature, commonly ariſing from the *Os Ethmoides* or ſpungye bone. It is ſo called, becauſe it reſembles the feet of a Sea *Polypus* in figure, and the fleſh thereof in conſiſtence. This Tumor ſtops the Noſe, intercepting and hindering the liberty of ſpeaking and blowing the Noſe. *Celſus* ſaith the *Polypus* is a caruncle or Excreſcence one while white, another while reddiſh, which adheres to the bone of the Noſe, and ſometimes fills the Noſthrils hanging towards the lipps, ſometimes it deſcends backe through that hole, by which the ſpirit deſcends from the Noſe to the throtle; it growes ſo that it may he ſeene behinde the *Vvula*, and often ſtrangles a man by ſtopping his breath.

Lib.6.Cap.8.

The differences thereof.

There are five kinds thereof, the firſt is, a ſoft membrane, long and thin like the relaxed and depreſſed *Vvula*, hanging from the middle griſtle of the noſe, being filled with a Phlegmaticke and viſcide humor. This in exſpiration hangs out of the Noſe, but is drawne in and hid by inſpiration; it makes one ſnaffle in their ſpeech and ſnort in their ſleepe. The ſecond, hath hard fleſh, bred of Melancholy blood without aduſtion, which obſtructing the noſthrils intercepts the reſpiration made by that part. The third, is fleſh hanging from the Griſtle, round, and ſoft, being the offſpring

ſpring of Phlegmaticke blood. The fourth is an hard Tumor, like fleſh, which when it is touched yeelds a ſound like a ſtone; it is generated of Melancholike blood dryed, being ſomewhat of the nature of a *Scirrhus* confirmed and without paine. The fifth is as it were compoſed of many cancrous ulcers ſpred over the tranſverſe ſurface of the griſtle.

Which of them admit no manuall operation.

Of all theſe ſorts of *Polypi*, ſome are not ulcerated, others ulcerated, which ſend forth a ſtinking and ſtrong ſmelling filth. Such of them as are painefull, hard, reſiſting, and which have a livide, or leaden colour, muſt not be touched with the hand, becauſe they ſavour of the Nature of a *Cancer*, as into which they oft degenerate; yet by reaſon of the paine which oppreſſes more violently, you may uſe the Anodyne medicines formerly deſcribed in a *Cancer*, ſuch as this following.

An Anodyne.

℞. *Olei de vitell. ovorum* ℥ij, *Lytharg. auri, & Tuthiæ præp. an.* ℥j. *ſucci plant. & ſolani an.* ℥ſſj. *Lapid. hæmatit. & camphoræ, an* ℥ſſ. Let them be wrought a long time in a leaden mortar, and ſo make a medicine to be put into the noſethrills. Thoſe which are ſoft, looſe and without paine, are ſometimes curable, being plucked away with an inſtrument made for that purpoſe, or elſe waſted by actuall cauteries put in through a pipe, ſo that they touch not the ſound part; or by potentiall cauteries, as *Ægyptiacum* compoſed of equall parts of all the ſimples with vitrioll which hath a facultie to waſte ſuch like fleſh. *Aquafortis* and oyle of vitrioll have the ſame facultie, for theſe take away a *Polypus* by the rootes; for if any part thereof remayne it will breede againe. But Cauteries and acride medicines muſt be put into the noſtrills with this Caution, that in the meane time cold repelling and aſtringent medicines be applied to the noſe and parts about it to aſſwage the paine, and hinder the inflammation. Such as are *Vnguentum de bolo*, and *vnguentum nutritum*, whites of Egges beate with Roſe leaves, and many other things of the like nature.

Why it muſt be taken cleare away.

CHAP. III.

Of the Parotides *that is, Certaine ſwellings about the Eares.*

What it is.

The *Parotis* is a Tumor againſt nature, affecting the Glandules and thoſe parts ſeated behinde and about the Eares, which are called the Emunctories of the braine; for theſe becauſe they are looſe and ſpungy, are fit to receive the excrements thereof. Of theſe ſome are criticall, the matter of the diſeaſe ſomewhat diſgeſted being ſent thither by the force of nature. Others Symptomaticall, the excrements of the braine increaſed in quantity or quality ruſhing thither of their owne accord. Such abſceſſes often have great inflammation joyned with them, becauſe the byting humor which flowes thither is more vitiated in quality than in quantity. Beſides alſo they often cauſe great paine, by reaſon of the diſtention of the parts indued with moſt exquiſit ſence, as alſo by reaſon of a Nerve of the fifth Conjugation ſpread over theſe parts; as alſo of the neighbouring membranes of the braine, by which meanes the patient is troubled with the Head-ach and all his face becomes ſwolne. Yet many times this kinde of Tumor uſeth to be rayſed by a tough, viſcous, and groſſe humor.

The differences. Their ſignes and Symptomes.

This diſeaſe doth more grievouſly afflict young men than olde; it commonly brings a Feaver and watching. It is difficult to be cured, eſpecially when it is cauſed by a groſſe, tough, and viſcide humor, ſent thither by the *Criſis*.

Prognoſticke.

The cure muſt be performed by diet, which muſt be cōtrary to the quality of the humor in the temper & conſiſtence of the meates. If the inflamation & redneſſe be great, which

The cure.

Lib.3.de comp. med.ſec.Locos, Hip.aph.21 lib.1.

which indicate abundance of bloud, Phlebotomie will be profitable, yea very neceſſary. But here we muſt not uſe the like judgement in application of locall medicines as wee doe in others tumors, as *Galen* admoniſheth us; that is, wee muſt not uſe repercuſſives at the beginning, eſpecially if the abſceſſe be criticall; for ſo, we ſhould infringe or foreſlow the indeavors of nature forcibly freeing it ſelfe from the morbifique matter. But wee muſt much leſſe repell or drive it backe if the matter which hath flowed thither be venenate, for ſo the reflow thereof to the noble parts would prove mortall. Wherefore the Chirurgion ſhall rather aſſiſt nature in attracting and drawing forth that humor. Yet if the defluxion ſhall be ſo violent, if the paine ſo fierce that thence there may be feare of watchings and a Feaver, which may deject the powers, *Galen* thinks it will be expedient with many reſolving medicines to mix ſome repelling. Wherefore at the beginning let ſuch a Cataplaſme be applyed.

℞. *Far. hord. & ſem. lin. ana.* ℥ij. *coquantur cum mulſa aut decocto cham. addendo but. recen. & olei cham. ana* ℥j. *fiat Cataplaſma.* And the following oyntment wil alſo be good.

Gentle reſolving medicines

℞. *But. recen.* ℥ij, *olei cham. & lilior. an.* ℥j. *unguen. de Althea* ℥ß. *ceræ parum*: make an oyntment to be applyed with moiſt and greaſie wooll to mitigate the paine, alſo ſomewhat more ſtrong diſcuſſing and reſolving medicins will be profitable, as:

Stronger reſolvers.

℞. *Rad. altheæ & bryon. an.* ℥ij. *fol. rutæ, puleg. orig. an. m.* j. *flo. chamæm. melil. an. p.* j. *coquantur in hydromelite, piſtentur, traijciantur, addendo farin. fænugræc. orobi, an.* ℥j. *pul. Ireos, cham. melilot. an.* ℥ij. *olei aneth. rutac. an.* ℥j. *fiat cataplaſma.* But if you determine to reſolve it any more, you may uſe *Emplaſtrum Oxycroceum & Melilot-Plaiſter.* If the humor doth there concrete and grow hard, you muſt betake you to the medicines which were preſcribed in the Chapter of the *Scirrhus*; but if it tend to ſuppuration, you ſhall apply the following medicine.

A Ripening medicine.

℞. *Rad. liliorum & ceparum ſub cineribus coct. an.* ℥iij. *Vitell. ovor. num.* ij. *axung. ſuillæ & unguent. baſilicon, an.* ℥j. *far. ſem. lini* ℥iß. *fiat Cataplaſma.* But if the matter doe ſo require, let the tumor be opened as we have formerly preſcribed.

CHAP. IIII.

Of the Epulis, *or overgrowing of the fleſh of the Gums.*

What it is.

THe *Epulis* is a fleſhy excreſcence of the Gums betweene the teeth, which is by litle and litle oft times encreaſed to the bignes of an Egge, ſo that it both hinders the ſpeach and eating; it caſts forth ſalivous and ſtincking filth, and not ſeldome degenerates into a *Cancer*, which you may underſtand by the propriety of the colour, paine and other accidents; for then you muſt by no meanes touch it with your hand. But that which doth not torment the Patient with paine, may be pluckt away; and let this be the manner thereof.

The Symptomes.

The Chirurgicall cure.

Let it be tyed with a double thred, which muſt be ſtraiter twitched untill ſuch time as it fall off; when it ſhall fall away, the place muſt be burnt with a cautery put through a trunke or pipe, or with *Aqua fortis*, or oyle of *Vitrioll*, but with great care that the ſound parts adjoyning thereto be not hurt, for if ſo be that it be not burnt, it uſually returnes.

I have often by this meanes taken away ſuch large tumors of this kinde, that they hung out of the mouth in no ſmall bignes, to the great diſſiguring of the face, which when as no Chirurgion durſt touch, becauſe the fleſh looked livide, I ventured upon becauſe they were free from paine; and by taking them away and cauterizing the place, I perfectly healed them; not truly ſodainly and at once; for although I burnt the place after diſſection; yet nevertheleſſe they ſprung up againe, becauſe a certaine portion of the bone and ſockets in which the Teeth ſtand faſtened, were become rotten

Why the cure muſt not be deferred.

I have often obſerved ſuch like fleſh by continuance of time to have turned into a griſtlely & bony ſubſtance. Wherfore the cure muſt be begun as ſpeedily as may be; for being but litle, and having faſtened no deepe roots, it is more eaſily taken away, being then only filled with a viſcide humor, which in ſucceſſe of time is hardened, and makes the taking away thereof more difficult.

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Chap. V.

Of the Ranula.

The Reaſon why it is ſo called.

THere is oft times a tumor under the tongue, which takes away the liberty of pronuntiation, or ſpeech; wherefore the Greeks call it *Batrachium*, the Latines *Ranula*, becauſe ſuch as have this diſeaſe of the tongue, ſeeme to expreſſe their minds by croaking rather than by ſpeaking.

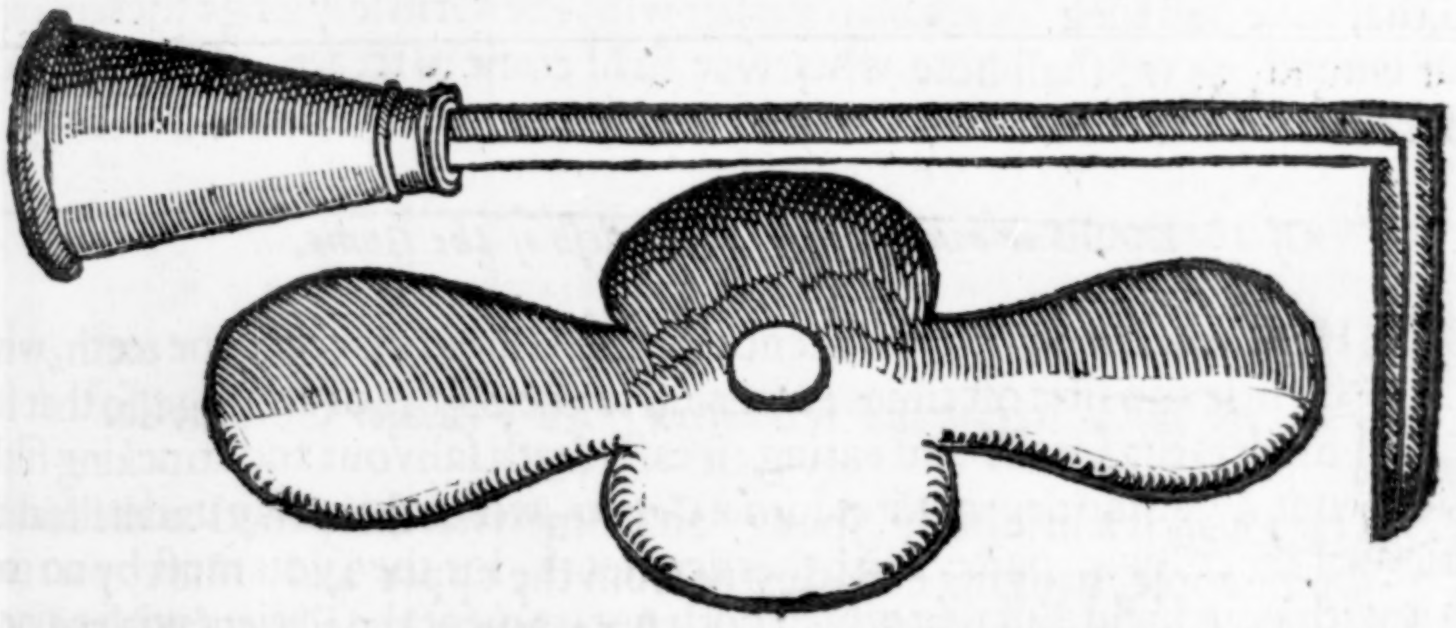
The Cauſe.

It is cauſed by the falling downe of a cold, moiſte, groſſe, tough viſcide and Phlegmaticke matter, from the braine upon the tongue, which matter in colour and conſiſtence reſembles the white of an egge, yet ſometimes it lookes of a Citrine or yellowiſh colour.

The Cure.

That you may ſafely performe the cure, you muſt open the Tumor rather with a cautery or hot Iron, than with a Knife, for otherwiſe it will returne againe. The manner of opening of it muſt be thus. You ſhall get a bended hollow and perforated iron plate with a hole in the midſt, and making the patient to hold open his mouth, you ſhall ſo fit it, that the hole may be upon the part which muſt be opened. Then there you muſt open it with an hot Iron, for ſo you ſhall hurt no part of the mouth which is whole; but when you are ready to burne it, by thruſting your thumbe under the Patients Chin, you may ſomewhat elevate the Tumor, whereby you may open it with more certainty; when it is opened you muſt thruſt out the matter conteined therein, and then waſh the patients mouth with ſome barly water, hony, and Sugar of Roſes; for ſo the ulcer will be ſafely and quickly healed.

The deliniation of the Iron plate and crooked actuall Cautery.



Chap. VI.

Of the ſwelling of the Glandules, or Almonds of the Thro ate.

Why the Glandules are called Almonds.

Their uſe.

NAture at the jawes neare the roots of the Tongue, hath placed two Glandules oppoſite to one another; in figure and magnitude like to Almonds, whence alſo they have their name; Their office is to receive the ſpittle falling downe from the braine, both leaſt that the too violent falling downe of the humor ſhould hinder the tongue in ſpeaking, as alſo that the tongue might alwayes have moiſture, as it were laid up in ſtore, leſt by continuall ſpeaking it ſhould grow dry and faile. For thus this ſpittle being conſumed by feaveriſh heats, the patients are ſcarſe able to ſpeake, unleſſe they firſt moiſten their tongue by much waſhing of their mouth.

The Cauſe of their tumor.

Theſe Glandules becauſe they are ſeated in an hot and moiſt place, are very ſubject to inflammations; for there flowes into theſe oft times together with the blood, a great quantity of crude, phlegmaticke and viſcous humors, whence ariſes a tumor;

which is not ſeldome occaſioned by drinking much and that vaporous wine, by too much Gluttony, and ſtaying abroad in the open aire.

Symptomes.

Swallowing is painfull and troubleſome to the Patient, and commonly hee hath a Feaver. Oft times the neighbouring Muſcles of the Throtle and necke are ſo ſwolne together with theſe Glandules, that (as it uſually happens in the *Squinzye*) the paſſage of the breath and aire is ſtopped, and the Patient ſtrangled.

Cure.

Extreme diſeaſes muſt have extreme remedies.

How you muſt open the Weazon.

We reſiſt this imminent danger by purging and blood-letting, by applying Cupping-Glaſſes to the Necke and ſhoulders, by frictions and ligatures of the extreme parts, and by waſhing and gargling the mouth and throte with aſtringent gargariſmes. But if they come to ſuppuration, you muſt with your inciſion Knife make way for the evacuation of the *Pus*, or Matter; but if on the contrary, theſe things performed according to art, defluxion be encreaſed, and there is preſent danger of death by ſtopping and intercepting the breath, for the ſhunning ſo great and imminent danger, the top or upper part of the *Aſpera arteria* or Weazon muſt be opened, in that place where it uſes to ſtand moſt out; & it may be done ſo much the ſafer, becauſe the jugular veines, and arteryes are furtheſt diſtant from this place, and for that this place hath commonly litle fleſh upon it. And that the inciſion may be the fitlyer made, the patient muſt be wiſhed to bend his head backe, that ſo the Artery may be the more eaſily come to by the inſtrument; then you ſhal make an inciſion overtwhart with a crooked knife betweene two rings (not hurting nor touching the Griſtlely ſubſtance) that is to ſay, the membrane which tyes together the Griſtlely rings being onely cut; you ſhall then judge that you have made the inciſion large enough, when you ſhall perceive the breath to breake out by the wound; the wound muſt be kept open ſo long, untill the danger of ſuffocation be paſt; and then it muſt be ſowed up not touching the Griſtle: But if the lipps of the wound ſhall be hard and callous, they muſt be lightly ſcarified, that ſo they may become bloody for their eaſier agglutination and union, as we ſhall ſhew more at large in the cure of Hare lips. I have had many in cure, who have recovered, that have had their Weazon together with the Griſtlely rings thereof cut with a great wound, as we ſhall note when wee ſhall come to treate of the cure of the wounds of that part.

Chap. VII.

Of the inflammation and relaxation of the Vvula, or Columella.

What the *Vvula* is, and what the uſe therof.

The Cauſe of the ſwelling thereof.

Symptomes.

The *Vvula* is a litle body, ſpongy and ſomewhat ſharpened to the forme of a pine apple, hanging even downe from the upper and inner part of the palat, ſo to breake the force of the Aire drawn in, in breathing and carryed to the Lungs, and to be as a quill to forme and tune the voyce. It often growes above meaſure by receiving moyſture falling downe from the braine, becomming ſharpe by litle and litle from a broader and more ſwolne *Baſis*. Which thing cauſes many Symptomes; for by the continuall irritation of the diſtilling humor the Cough is cauſed, which alſo hinders the ſleepe, and intercepts the liberty of ſpeech; but alſo by hindring reſpiration the patients cannot ſleepe unleſſe with open mouth: they are exerciſed with a vaine endeavoring to ſwallow (having as it were a morſell ſticking in their jawes) and are in danger of being ſtrangled.

The Cure.

The Cure by Chirurgery.

This diſeaſe muſt be reſiſted and aſſailed by purging, bleeding, Cupping, taking of chyſters, uſing aſtringent Gargles, and a convenient diet; but if it cannot thus be overcome, the cure muſt be tryed by a cauſticke of *Aqua fortis*, which I have divers times done with good ſucceſſe. But if it cannot be ſo done, it will be better to put to your hand, than through idleneſſe to ſuffer the patient to remaine in imminent and deadly danger of ſtrangling; yet in this there muſt very great caution be uſed; for the Chirurgeon ſhall not judge the *Vvula* fit to be touched with an inſtrument or cauſtick, which is ſwolne with much enflamed, or blacke blood after the manner of a *Cancer*; but hee ſhall boldly put to his hand if it be longiſh, grow ſmall by litle and litle into a ſharpe, looſe & ſoft point; if it be neither exceeding red, neither ſwolne with too much blood

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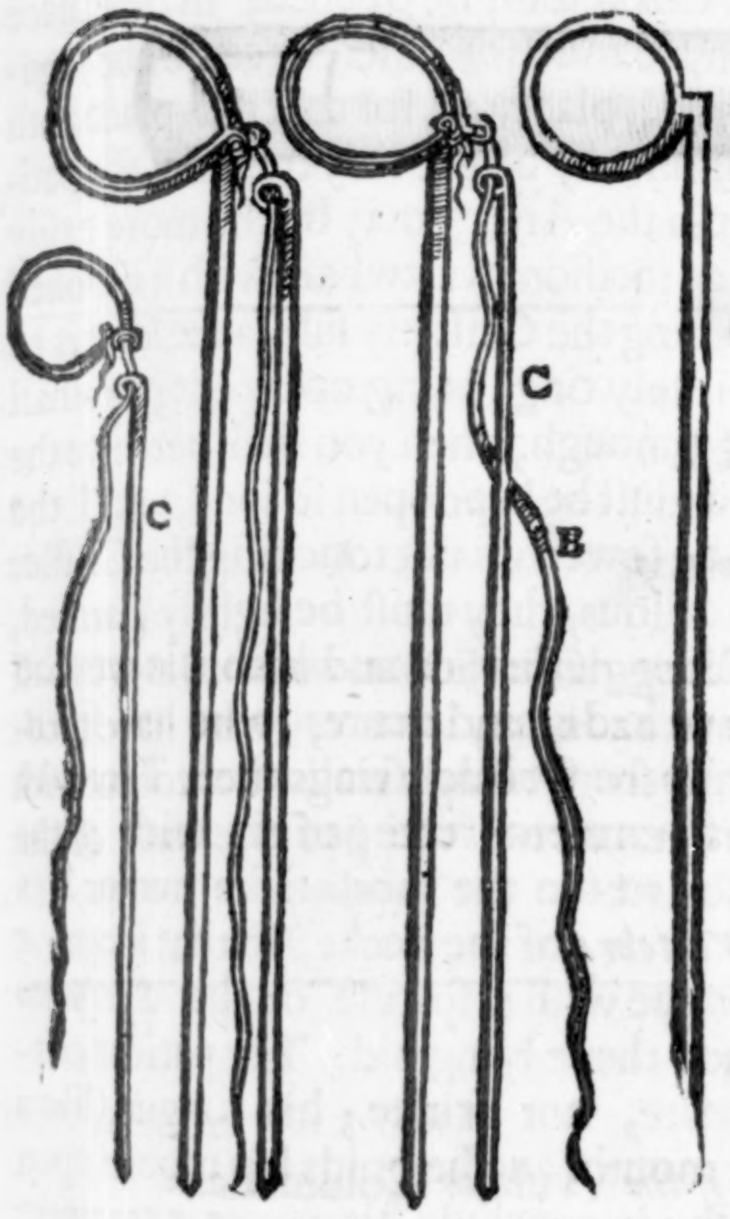
but whitiſh and without paine. Therefore that you may more eaſily and ſafely cut away, that which redounds and is ſuperfluous, deſire the patient to ſit in a light place, and hold his mouth open; then take hold of the top of the *Vvula* with your ſizers, and cut away as much thereof as ſhall be thought unprofitable. Otherwiſe you ſhall binde it with the inſtrument here under deſcribed; the invention of this inſtrument is to be aſcribed to *Honoratus Taſtellanus* that diligent and learned man, the Kings Phyſition in ordinary, and the chiefe Phyſition of the Queene mother; Which alſo may be uſed in binding of *Polypi* and warts in the necke of the Wombe.

The Deliniation of conſtrictory rings fit to twitch, or binde the Columella, *with a twiſted thred.*

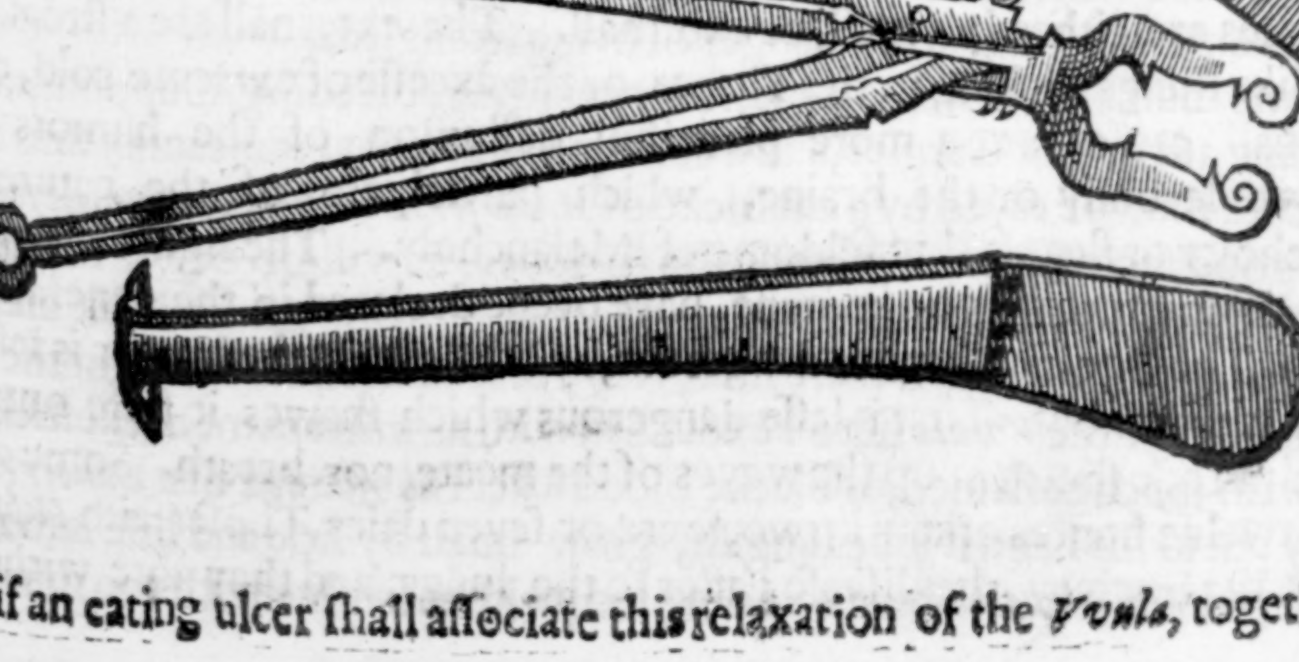


A. Shewes the ring whoſe upper part is ſomewhat hollow.

B. A double waxed thred, which is couched in the hollowneſſe of the ring, and hath a running, or looſe knot upon it.

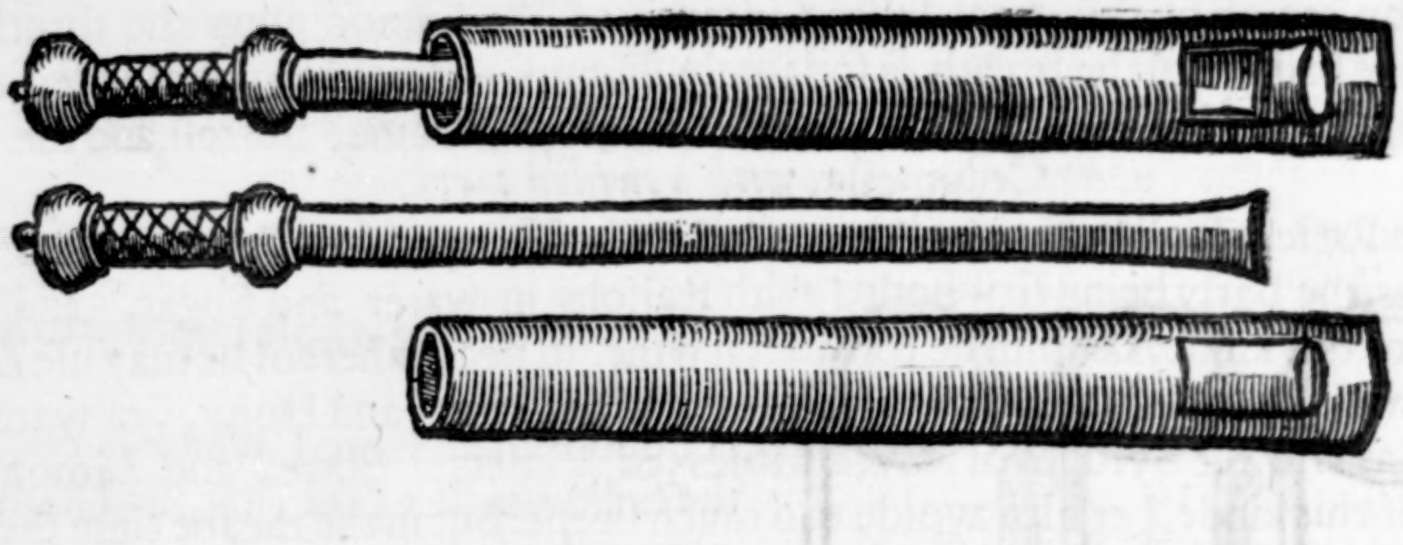
C. An iron rod, into the eye whereof the forementioned double thred is put, and it is to twitch the *Columella* when as much thereof is taken hold of, as is unprofitable, and ſo to take it away without any fluxe of blood. When you would ſtraiten the thred, draw it againe through this iron rod, and ſo ſtraine it as much as you ſhall thinke good, letting the end of the thred, hang out of the mouth. But every day it muſt be twitched harder than other, untill it fall away by meanes thereof, and ſo the part and patient be reſtored to health. I have deliniated three of theſe inſtruments, that you may uſe which you will, as occaſion ſhall be offered.

A Figure of the Speculum oris, *by which the mouth is held and kept open, whileſt the Chirurgion is buſied in the cutting away or binding the* Vvula.



But if an eating ulcer ſhall aſſociate this relaxation of the *Vvula*, together with a fluxe of blood, then it muſt be burnt and ſeared with an hot iron, ſo thruſt into a Trunke, or Pipe with an hole in it, that no ſound part of the mouth may be offended therewith.

A hollow Trunke with a hole in the ſide, with the hot iron inſerted, or put therein.



Chap. VIII.

Of the Angina, *or Squinzy.*

What it is. The Squinancy, or Squinzy, is a ſwelling of the jawes, which hinders the entring of the ambient aire into the weazon, and the vapours and ſpirit from paſſage forth, and the meate alſo from being ſwallowed. There are three differences thereof. The differences. The firſt kind. The firſt torments the patient with great paine, no ſwelling being outwardly apparent, by reaſon the morbificke humor lyes hid behinde the almonds or Glandules at the *Vertebra* of the necke, ſo that it cannot be perceived, unleſſe you hold downe the tongue with a ſpatula or the *Speculum oris*, for ſo you may ſee the redneſſe and tumor there lying hid. The Symptomes. The patient cannot draw his breath, nor ſwallow downe meate, nor drinke; his tongue, (like a Gray-hounds after a courſe,) hangs out of his mouth, and he holds his mouth open that ſo hee may the more eaſily draw his breath; to conclude, his voyce is as it were drownd in his jawes and noſe; he cannot lye upon his backe, but lying is forced to ſit, ſo to breathe more freely: and becauſe the paſſage is ſtopt, the drinke flyes out at his noſe; the eyes are fiery and ſwollen, and ſtanding out of their orbe. Thoſe which are thus affected are often ſuddainely ſuffocated, a foame riſing about their mouthes.

The ſecond kinde. The ſecond difference is ſaid to be that, in which the tumor appeares inwardly, but litle or ſcarſe any thing at all outwardly, the tongue, Glandules, and jawes appearing ſomewhat ſwollen.

The third. The third being leaſt dangerous of them all, cauſes a great ſwelling outwardly, but litle inwardly.

The Cauſes. The Cauſes are either internall, or externall. The externall are a ſtroake, ſplinter or the like things ſticking in the Throat, or the exceſſe of extreme cold, or heat. The internall cauſes are a more plentifull defluxion of the humors either from the whole body or the braine, which participate of the nature either of blood, choler or flegme, but ſeldome of Melancholy. The ſignes by which the kinde and commixture may be knowne, have beene declared in the generall treatiſe of tumors. The Squincy is more dangerous, by how much the humor is leſſe apparent within and without. That is leſſe dangerous which ſhewes it ſelfe outwardly, becauſe ſuch an one ſhuts not up the wayes of the meate, nor breath. Some dye of a Squincy in twelue houres others in two, foure or ſeven daies. Hip. ſect.3. prog.2. Aphor. 10. ſect.5. Thoſe (ſaith *Hippocrates*) which ſcape the Squincy, the diſeaſe paſſes to the lungs, and they dye within ſeven dayes; but if they ſcape theſe dayes, they are ſuppurated; but alſo often times this kind of diſeaſe is terminated by diſappearing, that is, by an obſcure reflux of the humor into ſome noble part, as into the Lungs (whence the *Empyema* proceeds) and into other principall parts, whoſe violating brings inevitable death; ſometimes by reſolution, otherwiſe by ſuppuration.

The way of Reſolution is the more to be deſired; it happens when the matter is ſmall, and that ſubtle, eſpecially if the Phyſition ſhall draw blood by opening a veine, and the patient uſe fitting Gargariſmes. A Criticall Squincy divers times proves deadly by reaſon of the great falling downe of the humor upon the throtle, by which the paſſage of the breath is ſodainely ſhut up. Brothes muſt be uſed made with Capons, and Veale, ſeaſoned with Lettuce, Purſlaine, Sorrell, and the cold ſeeds.

Diet.

Cure.

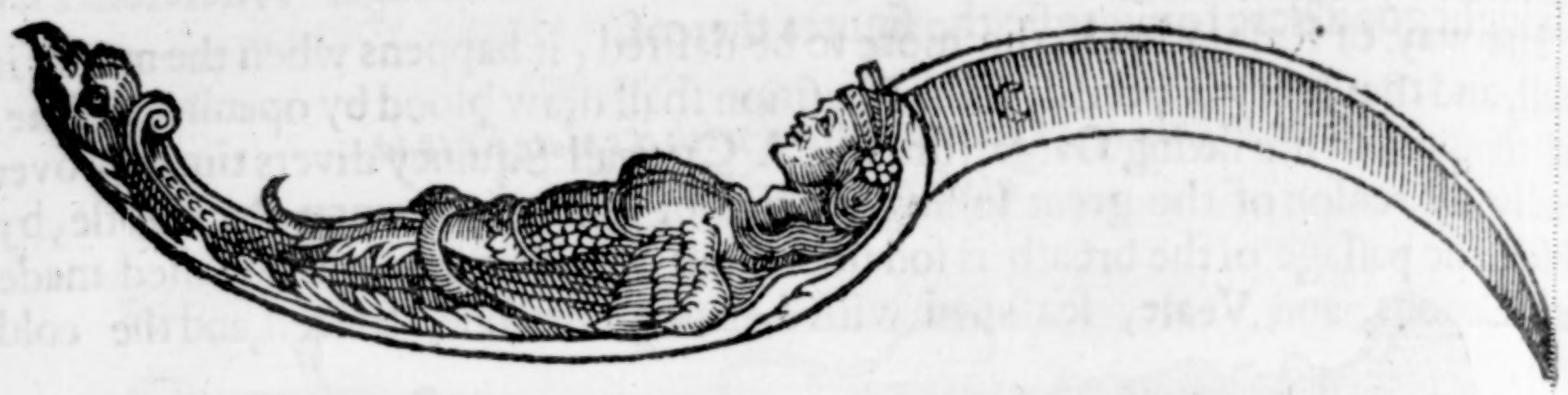
Repelling Gargariſmes.

Ripening Gargariſmes.

Detergent Gargariſmes.

If the Patient ſhall be ſomewhat weake, let him have potched Egges, and Barly Creames, the Barly being firſt boiled with Raiſons in water and Sugar, and other meates of this kinde. Let him be forbidden wine, in ſtead whereof he may uſe *Hydromelita*, and *Hydroſachara* (that is, drinkes made of water and Hony, or water and Sugar) as alſo the Syrupes of dryed Roſes, of Violets, Sorrell and Limons, and others of this kinde. Let him avoide too much ſleepe. But in the meane time the Phyſition muſt be carefull of all, becauſe this diſeaſe is of their kinde, which brooke no delayes. Wherefore let the *Baſilica* be preſently opened, on that ſide the tumor is the greater; then within a ſhort time after the ſame day, for evacuation of the conjunct matter, let the veine under the tongue be opened; let cupping-Glaſſes be applyed, ſometimes with ſcarification, ſometimes without, to the necke and ſhoulders, and let frictions and painefull Ligatures be uſed to the extreme parts. But let the humor impact in the part be drawne away by gliſters and ſharpe ſuppoſitories. Whileſt the matter is in defluxion, let the mouth without delay be waſhed with aſtringent gargariſmes to hinder the defluxion of the humor, leaſt by its ſuddaine falling downe it kill the Patient, as it often happens, all the Phyſitions care and diligence notwithſtanding. Therefore let the mouth be frequently waſhed with Oxycrate, or ſuch a gargariſme: ℞ *Pomorum ſilveſt. nu.* iiij. *ſumach, Roſar. rub. an. m. ſſ. berber.* ʒij. let them be all boyled with ſufficient quantity of water to the conſumption of the halfe, adding thereunto of the wine of ſoure Pomegranats ℥iiij. of *diamoron* ℥ij, let it be a litle more boyled and make a gargle according to arte. And there may be other Gargariſmes made of the waters of Plantaine, Night-ſhade, Verjuice, Iulep of Roſes and the like. But if the matter of the defluxion ſhall be Phlegmaticke, Alume, Pomgranate pill, Cypreſſe nuts, and a litle Vinegar may be ſafely added. But on the contrary, repercuſſives muſt not be outwardly applyed, but rather Lenitives, whereby the externall parts may be relaxed and rarified, and ſo the way be open either for the diffuſing or reſolving the portion of the humor. You ſhall know the humor to begin to be reſolved, if the Feaver leave the patient, if he ſwallow, ſpeake and breathe more freely, if he ſleepe quietly, and the paine begin to be much aſwaged. Therefore then natures endeavor muſt be helped by applying reſolving medicines, or elſe by uſing ſuppuratives inwardly and outwardly, if the matter ſeeme to turne into *Pus*. Therefore let gargariſmes be made of the roots of March-Mallowes, Figgs, Iujubes, damaſke Prunes, Dates, perfectly boyled in water. The like benefit may be had by Gargariſmes of Cowes milke with Sugar, by oyle of ſweete Almonds, or Violets warme, for ſuch things helpe forward ſuppuration and aſwage paine; let ſuppurating cataplaſmes be applyed outwardly to the necke and throate, and the parts be wrapped with wooll moiſtened with oyle of Lillyes. When the Phyſition ſhall perceive that the humor is perfectly turned into *pus*, let the patients mouth be opened with the *Speculum oris*, and the abſceſſe opened with a crooked and long inciſion knife; then let the mouth be now and then waſhed with clenſing gargles; as ℞. *Aquæ hordej lib. ſſ. mellis roſ. & ſyr. roſar. ſic. an* ℥j. *fiat gargariſma.* Alſo the uſe of *œnomel*, that is wine, and Hony will be fit for this purpoſe. The ulcer being clenſed by theſe means, let it be cicatrized with a litle roch-Alume added to the former gargariſmes.

The Figure of an inciſion knife opened out of the hafte, which ſerves for a ſheath thereto.



Chap. IX.

Of the Bronchocele, *or* Rupture *of the throate.*

The reaſon of the name.

THat which the French call Goetra, that the Greeks call ***Bronchocele***, the Latines ***Gutturis Hernia***, that is, the Rupture of the throate. For it is a round tumor of the throate, the matter wherof comming from within outwards, is conteined betweene the skin and weazon; it proceeds in weomen from the ſame cauſe as an ***Aneuriſma***.

The differences.

But this generall name of ***Bronchocele*** undergoes many differences, for ſometimes it retaines the nature of ***Melicerides***, other whiles of ***Steatom'as***, ***Atheroma's*** or ***Aneuriſma's***, in ſome there is found a fleſhy ſubſtance having ſome ſmall paine; ſome of theſe are ſmall, others ſo great, that they ſeeme almoſt to cover all the throate; ſome have a Cyſte, or bagge, others have no ſuch thing; all how many ſo ever they be, and what end they ſhall have, may be knowne by their proper ſignes; theſe which ſhall be cureable, may be opened with an actuall or potentiall cautery, or with an inciſion knife. Hence if it be poſſible, let the matter be preſently evacuated, but if it cannot be done at once, let it be performeed at diverſe times, and diſcuſſed by fit remedies, and laſtly let the ulcer be conſolidated and cicatrized.

The Cure.

Chap. X.

Of the Pleuriſie.

What it is.

THe Pleuriſie is an inflammation of the membrane, inveſting the ribbes, cauſed by ſubtile and cholericke bloud, ſpringing upwards with great violence from the hollow veine into the ***Azygos***, and thence into the intercoſtall veines, & is at length powred forth into the emptie ſpaces of the intercoſtall muſcles, and the mentioned membrane. Being contained there, if it tend to ſuppuration, it commonly infers a pricking paine, a Feaver and difficulty of breathing. This ſuppurated bloud is purged and evacuated one while by the mouth; the Lungs ſucking it, and ſo caſting it into the Weazon, and ſo into the mouth, otherwhiles by urine, and ſometimes by ſtoole.

Of a Pleuriſie comming to ſuppuration.

Of the change thereof into an *Empyema*.

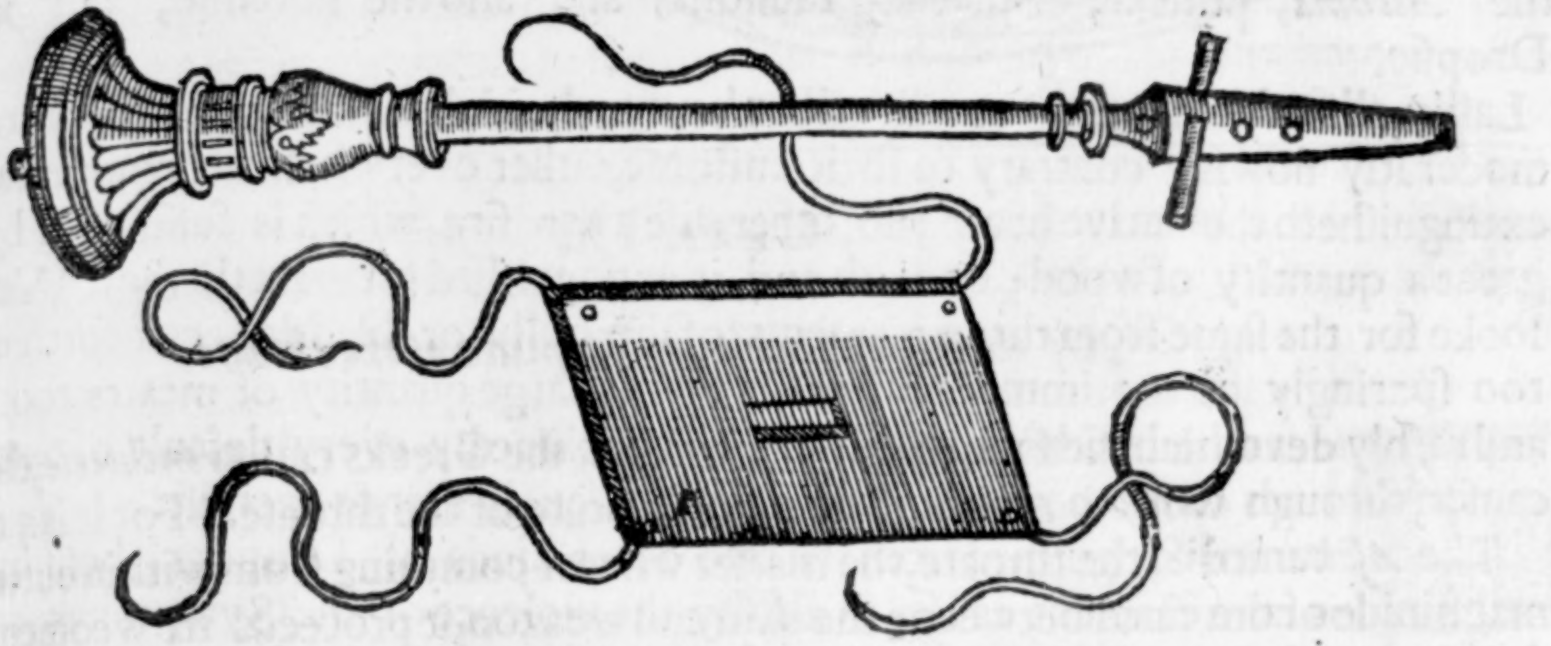
But if nature being too weake, cannot expectorate the purulent blood poured forth into the capacity of the Cheſt the diſeaſe is turned into an ***Empyema***, wherefore the Chirurgion muſt then be called, who beginning to reckon from below upwards, may make a vent betweene the third and fourth true and legitimate ribs; & that muſt be done either with an actuall or potentiall cautery, or with a ſharpe knife drawne upwards towards the backe, but not downwards, leſt the veſſells ſhould be violated which are diſſeminated under the rib. This apertion may be ſafely and eaſily performed by this actuall caurtry; it is perforated with foure holes, through one whereof there is a pin put higher or lower according to the depth & manner of your inciſion:

Of the apertion of the ſide in an *Empyema*

the

then the point thereof is thruſt through a plate af iron perforated alſo in the midſt, into the part deſigned by the Phyſition, leſt the wavering hand might peradventure touch, and ſo hurt the other parts not to be medled withall. This ſame plate muſt be ſomewhat hollowed, that ſo it might be more eaſily fitted to the gibbous ſide, and bound by the corners on the contrary ſide with foure ſtrings. Wherefore I have thought good here to expreſſe the figures thereof.

The Figure of an actuall cautery with its plate fit to be uſed in a pleuriſie.



But if the patient ſhall have a large body, Cheſt and ribs, you may divide and perforate the ribs themſelves with a Trepan; howſoever the apertion be made, the *pus* or matter muſt be evacuated by little and litle at ſeverall times; and the capacity of the Cheſt clenſed from the purulent matter by a detergent injection of vj ounces of Barly water, and ℥ij hony of Roſes, and other the like things mentioned at large in our cure of wounds.

CHAP. XI.

Of the Dropſie.

What the Dropſie is.

THe Dropſie is a Tumor againſt nature by the aboundance of a wateriſh humor, of flatulencies, or Phlegme, gathered one while in all the habite of the body, otherwhiles in ſome part, and that eſpecially in the capacity of the belly betweene the *Peritonæum* and entrailes. From this diſtinction of places and matters there ariſe divers kinds of Dropſies.

The differences thereof.

Firſt that Dropſie which fils that ſpace of the belly, is either moiſt or dry. The moiſt is called the *Aſcites*, by reaſon of the ſimilitude it hath with a leather bottle, or *Borachio*, becauſe the wateriſh humor is contained in that capacity, as it were in ſuch a veſſell.

The dry is called the *Tympanites*, or Timpany, by reaſon the belly ſwolne with winde, ſounds like a (*Tympanum*) that is, a Drum. But when the whole habit of the body is diſtended with a Phlegmaticke humor, it is called *Anaſarca* or *Leucophlegmatia*.

The Symptomes.

In this laſt kinde of Dropſie the lower parts firſt ſwell, as which by reaſon of their ſite are more ſubject to receive defluxions, and more remote from the fountaine of the native heate; wherefore if you preſſe them downe, the print of your finger will remaine ſometime after; the patients face will become pale and puffed up, whereby it may be diſtinguiſhed from the two other kinds of Dropſie. For in them firſt the belly, then by a certaine conſequence the thighes and feet doe ſwell. There are beſides alſo particular Dropſies contained in the ſtrait bounds of certaine places, ſuch are the *Hydrocephalos* in the head; the *Bronchochele* in the throat; the *Pleurocele* in the Cheſt; the *Hydrocele* in the *Scrotum*, or Cod; and ſo of the reſt.

The Cauſes.

Yet they all ariſe from the ſame cauſe; that is, the weakneſſe or defect of the altering or concocting faculties, eſpecially of the liver, which hath beene cauſed by a *Scyrrhus*, or any kinde of great diſtemper, cheifly cold, whether it happen primarily, or ſecondarily by reaſon of ſome hote diſtemper diſſipating the native and inbred heate, ſuch a Dropſie is uncureable; or elſe it comes by conſent of ſome other higher or lower part; for if in the Lungs, Midriffe, or Reines there be any diſtemper, or diſeaſe bred, it is eaſily communicated to the gibbous part of the Liver by the branches of the hollow veine, which runne thither. But if the miſchiefe proceed from the Spleene, Stomacke, Meſentery, Guts, eſpecially the *jejunum* and *Ileum*, it creeps into the hollow ſide of the Liver by the meſeraicke veines, and other branches of the *Vena porta* or Gate-veine. For thus ſuch as are troubled with the *Aſthma*, ptiſicke, Spleene, Iaundiſe, and alſo the Phrenſie, fall into a Dropſie.

How divers diſeaſes turne into Dropſies.

Laſtly, all ſuch as have the menſtruall or hæmorrhoidall bloud ſuppreſſed or too immoderatly flowing contrary to their cuſtome, either overwhelmes, diminiſheth or extinguiſheth the native heate; no otherwiſe than fire, which is ſuffocated by too great a quantity of wood; or dieth and is extinguiſhed for want thereof. We muſt looke for the ſame from the excrements of the belly or bladder, caſt forth either too ſparingly or too immoderatly: Or by too large quantity of meates too cold, and raſhly devoured without any order; To conclude by every default of externall cauſes, through which occaſion, error may happen, in diet or exerciſe.

The ſignes of an *Aſcites*.

The *Aſcites* is diſtinguiſhed from the two other kinds of Dropſies, both by the magnitude of the efficient cauſe, as alſo by the violence of the Symptomes, as the dejected appetite, thirſt, and ſwelling of the *Abdomen*. And alſo when the body is moved or turned upon either ſide, you may heare a ſound as of the jogging of water in a veſſell halfe full. Laſtly the humor is diverſely driven upwards or downewards, according to the turning of the body and compreſſion of the *Abdomen*; It alſo cauſeth various Symptomes by preſſure of the parts to which it floweth. For it cauſeth difficultie of breathing and the cough by preſſing the Midriffe; by ſweating through into the capacity of the Cheſt it cauſeth like Symptomes as the *Empyema*. Beſides alſo the Patients often ſeeme, as it were, by the ebbing and flowing of the wateriſh humor, one while to be carryed to the skies, and another whiles to be drowned in the water; which I have learnt not by reading of any author, but by the report of the patients themſelves. But if theſe wateriſh humors be fallen downe to the lower parts, they ſuppreſſe the excrements of the Gutts and bladder by preſſing & ſtraitning the paſſages. When the patient lies on his backe the tumor ſeemes leſſe, becauſe it is ſpread on both ſides; On the contrary when hee ſtands or ſits, it ſeemes greater, for that all the humor is forced or driven into the lower belly, whence hee feeles a heavines in the *Pecten* or ſhare. The upper parts of the body fall away by defect of the bloud fit for nouriſhment in quality and conſiſtence; but the lower parts ſwell by the flowing downe of the Serous and watriſh humor to them. The pulſe is little, quicke, and hard with tention.

The Symptoms.

Prognoſtickes.

This diſeaſe is of the kinde of Chronicall or long diſeaſes; wherefore it is ſcarce, or never cured, eſpecially in thoſe who have it from their mothers wombe, who have the Action of their Stomacke depraved, and thoſe who are cachecticke, old, and laſtly all ſuch as have the naturall facultie languiſhing and faultie.

On the contrary young and ſtrong men, eſpecially if they have no Feaver, and finally all who can endure labour and thoſe exerciſes which are fit for curing this diſeaſe, eaſily recover, principally if they uſe a Phyſition before the water which is gathered together doe putrifie and infect the bowells by its contagion.

Chap. XII.

Of the cure of the Dropſie.

THe beginning of the cure muſt be with gentle and milde medicines; neither muſt we come to a *Paracenteſis*, unleſſe we have formerly uſed and tried theſe. Therefore it ſhall be the part of the Phyſition to preſcribe a drying diet, and ſuch medicines as carry away water, both by ſtoole and urine. *Hippocrates* ordaines this powder for Hydropicke perſons. ℞, *Canthar. ablatis capitib. & alis* ʒß. *Comburentur in furno, & fiat pulvis*; of which adminiſter two graines in white wine, for nature helped by this, and the like remedies hath not ſeldome beene ſeene to have cured the dropſie. But that we may haſten the cure, it will be availeable to ſtirre up the native heate of the part by application of thoſe medicines which have a diſcuſſing force: as bagges, baths, ointments, and emplaiſters. Let bagges be made of drie and harſh Bran, Oates, Salt, Sulphure, being made hot, or for want of them, of Sander, or Aſhes often heated.

Hip. lib. 4. de acut. & lib. de intern.

Bagges.

The more effectuall baths are ſalt, nitrous, and ſulphurous waters, whether by Nature or Art, that is, prepared by the diſſolution of Salt niter, and Sulphur; to which, if Rue, Marjarom, the leaves of Fennell, and tops of Dill, of *Stœchas*, and the like be added, the buſineſſe will goe better forwards. Let the ointments be made of the oyles of Rue, Dill, Baies, and Squills, in which ſome *Euphorbium*, Pellitory of Spaine, or Pepper have beene boyled. Let plaiſters be made of Franckinſence, Myrrhe, Turpintine, *Coſtus*, Baiberies, Engliſh galengall, hony, the dung of Oxen, Pigeons, Goats, Horſes, and the like, which alſo may be applied by themſelves. If the diſeaſe continue, we muſt come to *Synapiſmes* and *Phœnigmes*, that is, to rubrifying and veſicatory medicines. When the bliſters are raiſed, they muſt be annointed againe, that ſo the water may by little and little flow ſo long untill all the humor be exhauſted, and the patient reſtored to health.

Bathes.

Liniments.

Emplaiſters.

Veſicatories.

Galen writes, the Husbandmen in *Aſia*, when they carried wheat out of the country into the city in Carrs, when they will ſteale away and not be taken, hidde ſome ſtone juggs fild with water in the middeſt of the wheat; for that will draw the moiſture through the juggs into it ſelfe, and increaſe both the quantitie and weight. When certaine pragmaticall Phyſitions had read this, they thought that wheat had force to draw out the water, ſo that if any ſicke of the Dropſie ſhould be buried in a heape of wheat, it would draw out all the water.

Gal. lib. de facul. natur. 1.

But if the Phyſition ſhall profit nothing by theſe meanes, he muſt come to the exquiſitely chiefe remedy, that is, to *Paracenteſis*. Of which becauſe the opinions of the ancient Phyſitions have beene divers, we will produce and explaine them.

Divers opinions of *Paracenteſis*, or opening of the belly.

Thoſe therefore which diſallow *Paracenteſis*, conclude it dangerous for three reaſons. The firſt is, becauſe by powring out the contained water, together with it, you diſſipate and reſolve the ſpirits, and conſequently the naturall, vitall, and a nimall faculties; another opinion is, becauſe the Liver wanting the water by which formerly it was borne up; thence forward hanging downe by its weight, depreſſeth and draweth downewards the Midriffe and the whole Cheſt, whence a drie cough, and a difficulty of breathing proceede. The third is, becauſe the ſubſtance of the *Peritonæum*, as that which is nervous, cannot be pricked or cut without danger, neither can that which is pricked or cut be eaſily agglutinated and united, by reaſon of the ſpermatique and bloudleſſe nature thereof. *Eraſiſtratus* moved by theſe reaſons condemned *Paracenteſis* as deadly: alſo he perſwaded that it was unprofitable for theſe following reaſons, *viz.* becauſe the water powred forth, doth not take away with it the cauſe of the Dropſie, and the diſtemper and hardneſſe of the Liver, and of the other bowels, whereby it comes to paſſe that by breeding new waters they may eaſily againe fall into the Dropſie. And then the feaver, thirſt, the hot and drie diſtemper of the bowels, all which were mitigated by the touch of the included water, are aggravated by the abſence thereof, being powred forth: which thing ſeemeth to have moved *Avicen* and *Gordonius* that he ſaid none; the other ſaid very few lived after the *Paracenteſis*: but the refutation of all ſuch reaſons is very eaſie.

Reaſons againſt it.

Eraſiſtratus his Reaſons againſt it.

Reaſons for it.

For, for the firſt *Galen* inferres, that harmefull diſſipation of ſpirits, and reſolving the faculties happens, when the Paracenteſis is not diligently, and artificially performed. As in which the water is preſently powred forth; truly if that reaſon have any validity, Phlebotomy muſt ſeeme to be removed farre from the number of wholeſome remedies, as whereby the bloud is powred forth, which hath farre more pure and ſubtile ſpirits, than thoſe which are ſaid to be diffuſed and mixed with the Dropſie-waters.

Lib.3.Cap.21.

Lib. de morb. Ch. cap. de Hydrope.

The places of the apertion muſt be divers, according to the parts chiefely affected.

The manner of making apertion.

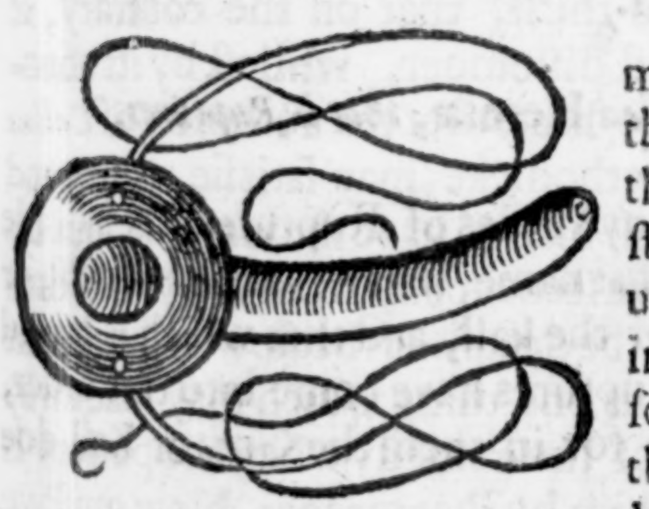
But that danger which the ſecond reaſon threatens ſhall eaſily be avoided; the patient being deſired to lie upon his backe in his bed, for ſo the Liver will not hang downe. But for the third reaſon, the feare of pricking the *Peritonæum*, is childiſh: for thoſe evils which follow upon wounds of the nervous parts, happen by reaſon of the exquiſite ſence of the part, which in the *Peritonæum* ill affected and altered by the contained water, is either none or very ſmall. But reaſon and experience teach, many nervous parts, alſo the very membranes themſelves being farre removed from a fleſhie ſubſtance, being wounded, admit cure; certainely much more the *Peritonæum*, as that which adheres ſo ſtraitly to the muſcles of the *Abdomen*, that the diſſector cannot ſeparate it from the fleſh, but with much labour. But the reaſon which ſeemes to argue the unprofitableneſſe of the *Paracenteſis* is refelled by the authority of *Celſus*. I, ſaith he, am not ignorant that *Eraſiſtratus* did not like *Paracenteſis*; for he throught the Dropſie to be a diſeaſe of the Liver, and ſo that it muſt be cured, and that the water was in vaine let forth, which the Liver being vitiated, might grow againe. But firſt this is not the fault of this bowell alone, and then although the water had his originall from the Liver, yet unleſſe the water which ſtaieth there contrary to nature being evacuated, it hurteth both the Liver, and the reſt of the inner parts, whileſt it either encreaſeth their hardneſſe, or at the leaſt keepeth it hard, and yet notwithſtanding it is fit the body be cured. And although the once letting forth of the humor profit nothing, yet it make way for medicines, which while it was there contained, it hindered. But this ſerous, ſalt, and corrupt humor, is ſo farre from being able to mitigate a Feaver and thirſt, that on the contrary, it encreaſeth them. And alſo it augmenteth the cold diſtemper, whileſt by its abundance it overwhelmes and extinguiſheth the native heate. But the authority of *Cælius Aurelianus* that moſt noble Phiſition, though a Methodicke, may ſatisfie *Avicen* and *Gordonius*. They, ſaith he, which dare avouch that all ſuch as have the water let out by opening their belly have died, doe lie; for we have ſeene many recover by this kind of remedy: but if any died, it happened either by the default of the ſlow or negligent adminiſtration of the *Paracenteſis*. I will adde this one thing which may take away all error of controverſies: we unwiſely doubt of the remedy when the patient is brought to that neceſſity, that we can onely helpe him by that meanes. Now muſt we ſhew how the belly ought to be opened. If the Dropſie happen by fault of the Liver, the ſection muſt be made on the left ſide; but if of the Splene, in the right: for if the patient ſhould lie upon the ſide which is opened, the paine of the wound would continually trouble him, and the water running into that part where the ſection is, would continually droppe, whence would follow a diſſolution of the faculties. The Section muſt be made three fingers bredth below the Navell, to wit, at the ſide of the right muſcle, but not upon that which they call the *Linea Alba*; neither upon the nervous parts of the reſt of the muſcles of the *Epigaſtrium*; that ſo we may prevent paine and difficulty of healing. Therefore wee muſt have a care that the patient lie upon his right ſide, if the inciſion be made in the left, or on the left, if on the right. Then the Chirurgion both with his owne hand, as alſo with the hand of his ſervant aſſiſting him, muſt take up the ſkinne of the belly, with the fleſhie pannicle lying under it, and ſeparate them from the reſt; then let him divide them ſo ſeparated with a Section even to the fleſh lying under them, which being done, let him force as much as hee can the devided ſkinne upwards towards the ſtomacke, that when the wound, which muſt preſently be made in the fleſh lying there under, ſhall be conſolidated, the ſkinne by its falling therein, may ſerve for that purpoſe: then therefore let him divide the muſculous fleſh and *Peritonæum* with a ſmall wound, not hurting the Kall or Guts.

Then put into the wound a trunke, or golden, or ſilver crooked pipe, of the thickneſſe of a Gooſes-quill, and of the length of ſome halfe a finger. Let that part of it which goes into the capacity of the belly have ſomething a broad head, and that perforated with two ſmall holes, by which a ſtring being faſtened, it may be bound ſo about the body, that it cannot be moved, unleſſe at the Chirurgions pleaſure. Let a ſpunge be put into the pipe, which may receive the dropping humor: and let it be taken out when you would evacuate the water: but let it not be powred out all together, but by little and little, for feare of diſſipation of the ſpirits, and reſolution of the faculties, which I once ſaw happen to one ſicke of the Dropſie. He being impatient of the diſeaſe and cure thereof, thruſt a Bodkin into his belly, and did much rejoyce at the powring forth of the water, as if he had bin freed from the humor and the diſeaſe, but died within a few houres, becauſe the force of the water, running forth, could by no meanes be ſtaied, for the inciſion was not artificially made. But it will not be ſufficient to have made way for the humor by the meanes aforementioned, but alſo the externall orifice of the pipe muſt be ſtopped and ſtrengthened by double cloathes, and a ſtrong ligature, leaſt any of the water flow forth againſt our wills. But we muſt note that the pipe is not to be drawne out of the wound, before as much water ſhall be iſſued forth as we deſire, & the tumor requireth; for once drawne forth, it cannot eaſily be put in againe, and without force & paine be fitted to the lips of the wound, becauſe the skin and fleſhy pannicle cover it by their falling into the wound of the fleſh or muſcle. But whileſt the water is in evacuation, we muſt have a diligent care of feeding the Patient, as alſo of his ſtrength, for if that faile, and he ſeeme to be debilitated, the effuſion of the water muſt be ſtaied for ſome dayes; which at the length performed according to our deſire, the wound muſt be ſo conſolidated that the Chirurgion beware it degenerate not into a Fiſtula.

A Hiſtory.

A Caution for taking out the Pipe.

The Figure of a Pipe in forme of a Quill, to evacuate the water in Dropſies.



Others performe this buſineſſe after another manner; for making an inciſion, they thruſt through the lipps of the wound with a needle and threed: but they take up much of the fleſhie ſubſtance with the needle, leaſt that which is taken up ſhould be rent and torne by the forcible drawing of the lippes together. Then the threed it ſelfe is wrapped up and downe over both ends of the needle, ſo thruſt through, as is uſually done in a hare-lippe, that ſo the lippes of the wound may ſo cloſely cohere, that not a drop of water may get out againſt the Chirurgions will. Sometimes ſuch as are cured and healed of the Dropſie, fall into the Iaundiſe, whom I uſually cure after this manner. ℞, *ſterc. anſer.* ʒij, diſſolve it in ℥iij, *vini alb. coletur*, make a Potion, and let it be given two houres before meate.

Another manner of evacuating the water after the apertion.

A medicine for the Iaundiſe.

Chap. XIII.

Of the tumor and relaxation of the Navell.

THe *Exomphalos* or ſwelling of the Navell, is cauſed by the *Peritonæum*, either relaxed or broken: for by this occaſion oft-times the Guts, and oft-times the Kall, fall into the ſeat of the Navell, and ſometimes ſuperfluous fleſh is there generated; otherwiſe this tumor is as an *Aneuriſma* by too great a quantity of bloud powred forth in that place: otherwiſe by a flatulent matter, and ſometimes by a wateriſh humor. If the humor be occaſioned by the Kall, the part it ſelfe will retaine his proper colour, that is, the colour of the skinne; the tumor will be ſoft and almoſt without paine, and which will reſide without noiſe, either by the preſſure of your fingers, or of it ſelfe when the Patient lieth on his backe; but the tumor

The divers cauſes thereof.

Signes hereof occaſioned by the Kall.

By the guts:
By fleſh,

tumor cauſed by the guts, is more unequall, and when it is forced inby the preſſure of your fingers, there is ſuch a noiſe heard, as in the *Enterocele*; but if the tumor proceede of ſuperfluous fleſh, it will be harder and more ſtubborne, not eaſily retiring into the body, although the Patient lie upon his backe, and you preſſe it with your fingers.

By winde.
By a wateriſh humor.
By bruiſed blood.
Which may be cured by Chirurgery, which not.
The cure by Chirurgery.

The tumor is ſofter which proceeds of winde, but which will not retire into the body, and ſounds under your naile like a taber. If the ſwelling be cauſed by a wateriſh humor, it hath all things common with the flatuous tumor, except that it is not ſo viſible, and without noiſe. If it be from effuſion of bloud, it is of a livid colour, but if the effuſed bloud ſhall be arteriall, then there are the ſignes of an *Aneuriſma*. Wherefore when the tumor is cauſed by the Guts, Kall, Winde, or a wateriſh humour, it is cured by Chirurgery: but not if it proceede from a fleſhie excreſcence or ſuffuſion of bloud. The tumor of the Navell proceeding from the Kall, and Guts, the Patient muſt lie upon his backe to be cured, and then the Kall, and Guts, muſt with your fingers be forced into their due place: then the ſkinne with which the tumor is circumſcribed muſt be taken up with your fingers, and thruſt through with a needle, drawing after it a double twined and ſtrong threed; then it muſt be ſcarified about the ſides, that ſo it may be the eaſier agglutinated. Then muſt it be thruſt through with a needle, three or foure times, according to the manner and condition of the diſtention and tumor. And ſo twitch it ſtrongly with a threed, that the ſkinne which is ſo bound may at length fall off together with the ligatures. But alſo you may cut off the ſkinne ſo diſtended even to the ligature, and then cicatrize it, as ſhall be fit. A flatulent tumor of the Navell ſhall be cured with the ſame remedies, as we ſhall hereafter mention in the cure of a windy rupture, but the watery may be powred forth by making a ſmall inciſion. And the wound ſhall be kept open, ſo long, untill all the water be drained forth.

Chap. XIIII.

Of the Tumors of the Groines and Codds, called Herniæ, *that is, Ruptures.*

There are onely 3. ſorts of Ruptures.

THe ancient Phiſitions have made many kindes of Ruptures, yet indeede there are onely three to be called by that name, that is, the *Inteſtinalis*, or that of the guts, the *Zirbalis*, or that of the kall, and that which is mixed of them both. The other kindes of Ruptures have come into this order, rather by ſimilitude, than any truth of the thing: for in them the Gut, or Kall doe not forſake their places.

Bubonocele.
Enterocele and *Epiplocele.*
Hydrocele. *Phyſocele.*
Sarcocele.
Cirſocele.
The Cauſes.
The ſignes.

The Greekes have given to all theſe ſeverall names, both from the ſeat of the tumor, as alſo from their matter. For thus they have called an unperfect rupture which deſcends not beyond the Groines, nor falls downe into the Codds, *Bubonocele*: but the compleate which penetrates into the Codde, if it be by falling downe of the Gut, *Enterocele*: if from the Kall, *Epiplocele*; if from them both together, they name it *Enteroepiplocele*: but if the tumor proceede from a wateriſh humor, they terme it *Hydrocele*; if from winde, *Phyſocele*, if from both, *Hydrophyſocele*; if a fleſhie excreſcence ſhall grow about the teſticle, or in the ſubſtance thereof, it is named *Sarcocele*. If the veines interwoven, and divaricated diverſe wayes ſhall be ſwollen in the Codde and Teſticles, the tumor obtaines the name of a *Cirſocele*. But if the humors ſhall be ſhut up, or ſent thither, the name is impoſed upon the tumor, from the predominant humor, as we have noted in the beginning of our Tractate of tumors. The cauſes are many, as all too violent motions, a ſtroake, a fall from a high place, vomiting, a cough, leaping, riding upon a trotting horſe, the ſounding of trumpets, or ſackbuts, the carrying, or lifting vp of a heavy burden, racking, alſo the too immoderate uſe of viſcide and flatulent meates; for all ſuch things may either relaxe or breake the *Peritonæum*, as that which is a thinne and extended membrane. The ſignes of a *Bubonocele* are a round tumor in the Groine, which preſſed, is eaſily forced in. The ſignes of an *Enterocele*, are a hard tumor in the Codde, which forced, returneth backe and departeth with a certaine murmour and paine; but the tumor proceeding of the Kall, is laxe and feeles ſoft like Wooll, and which is more difficultly forced in, than that which proceeds from the Guts, but yet without murmuring and paine: for the ſubſtance of the Guts, ſeeing it is one, and continued to it ſelfe, they doe not onely mutually ſucceede each other, but by a certaine conſequence doe, as in a dance draw each other, ſo to avoide diſtention, which in their membranous body cannot be without paine, by reaſon of their change of place from that which is naturall, into that againſt nature: none of all which can befall the Kall, ſeeing it is a ſtupide body, and almoſt without ſence, heavy, dull, and immoveable. The ſignes that the *Peritonæum* is broken, are the ſudden increaſe of the tumor, and a ſharpe and cutting paine; for when the *Peritonæum* is onely relaxed, the tumor groweth by little and little, and ſo conſequently with ſmall paine; yet ſuch paine returnes ſo often, as the tumor is renewed by the falling downe of the Gut, or Kall, which happens not the *Peritonæum* being broken: for the way being once open, and paſſable to the falling body, the tumor is renued without any diſtention, and ſo without any paine to ſpeake of. The reſt of the ſignes ſhall be handled in their places. Sometimes it happens that the Guts, and Kall, do ſo firmely adhere to the proceſſe of the *Peritonæum*, that they can not be driven back into their proper ſeate. This ſtubborne adheſion happens by the intervention of the viſcide matter, or by meanes of ſome excoriation cauſed by the rude hand of a Chirurgion, in too violently forcing of the Gut, or Kall, into their place. But alſo, too long ſtay of the gut in the codde, and the neglect of wearing a Truſſe, may give occaſion to ſuch adheſion. A perfect and inveterate rupture by the breaking of the proceſſe of the *Peritonæum* in men of full growth, never, or very ſeldomes admits of cure. But you muſt note, that by great ruptures of the *Peritonæum*, the Guts may fall into the codde, to the bigneſſe of a mans head, without much paine and danger of life, becauſe the excrements, as they may eaſily enter, by reaſon of the largeneſſe of the place and rupture, ſo alſo they may eaſily returne.

What rupture is uncurable.

Chap. XV.

Of the cure of Ruptures.

Becauſe children are very ſubject to Ruptures, but thoſe truely not fleſhy or varicous, but watry, windy, and eſpecially of the Guts, by reaſon of continuall and painefull crying and coughing: Therefore in the firſt place we will treate of their cure. Wherefore the Chirurgion, called to reſtore the Gut which is fallen downe, ſhall place the child, either on a table, or in a bed, ſo that his head ſhall be low, but his buttocks, and thighes higher; then ſhall he force with his hands by little and little, and gently, the Gut into its proper place; and ſhall foment the Groine with the aſtringent fomentation, deſcribed in the falling downe of the wombe. Then let him apply this remedy, ℞, *Præſcript. decoctionis quantum ſufficit, farinæ hordei & fabarum, an.* ℥j, *pulver. Aloes, Maſtiches, Myrtyll. & Sarcoco. an.* ʒß, *Boli Armeni* ℥ij. Let them be incorporated and made a cataplaſme according to Art. For the ſame purpoſe he may apply *Emplaſtrum contra Rupturam*: but the chiefe of the cure conſiſts in folded clothes, and Truſſes, and ligatures artificially made, that the reſtored gut may be contained in its place, for which purpoſe he ſhall keepe the child ſeated in his cradle for 30. or 40. dayes, as we mentioned before; and keepe him from crying, ſhouting, and coughing. *Aetius* bids ſteepe paper 3. dayes in water, and apply it made into a ball to the groine, the gut being firſt put up; for that remedy by 3. dayes adheſion wil keep it from falling down. But it wil be, as I ſuppoſe more effectuall, if the paper be ſteeped not in common, but in the aſtringent water, deſcribed in the falling downe of the wombe. Truely I have healed many by the helpe of ſuch remedies, and have delivered them from the hands of Gelders, which are greedy of childrens teſticles, by reaſon of the great gaine they receive from thence. They by a crafty cozenage, perſwade the Parents, that the falling downe of the Gut into the Codde, is uncurable: which thing notwithſtanding, experience convinceth to be falſe, if ſo be the cure be performed acccording to the forementioned manner, when the *Peritonæum* is onely relaxed, and not broken: for the proceſſe thereof by which the

To what ruptures children are ſubject.

An aſtringent cataplaſme.

Ser. 1. Cap. 24.

The craft and covetouſneſſe of Gelders.

Another way to cure Ruptures.

the Gut doth fall as in a ſteepe way, in progreſſe of time and age is ſtraitned and knit together, whileſt alſo in the meane time the guts grow thicker.

A certaine Chirurgion who deſerveth credit, hath told me that he hath cured many children as thus: He beates a loadſtone into fine powder, and gives it in pappe, and then hee annointes with hony the Groine, by which the gut came out, and then ſtrewed it over with fine filings of iron. He adminiſtred this kinde of remedy for ten or twelve dayes: The part, for other things, being bound up with a ligature and truſſe as was fitting. The efficacie of this remedy ſeemeth to conſiſt in this; that the loadeſtone by a naturall deſire of drawing the iron which is ſtrewed upon the Groine, joynes to it the fleſhy and fatty particles interpoſed betweene them, by a certaine violent impetuoſity, which on every ſide preſſing and bending the looſeneſſe of the *Peritonæum*, yea verily adjoyning themſelves to it, in proceſſe of time by a firme adheſion intercept the paſſage and falling downe of the Gut or Kall; which may ſeeme no more abhorring from reaſon, than that we behold the loadſtone it ſelfe through the thickneſſe of a table, to draw iron after it any way. The ſame Chirurgion affirmed, that he frequently and happily uſed the following medicine. Hee burnt into aſhes in an Oven red Snailes, ſhut up in an earthen pot, and gave the powder of them to little children in pappe, but to thoſe which were bigger, in broath.

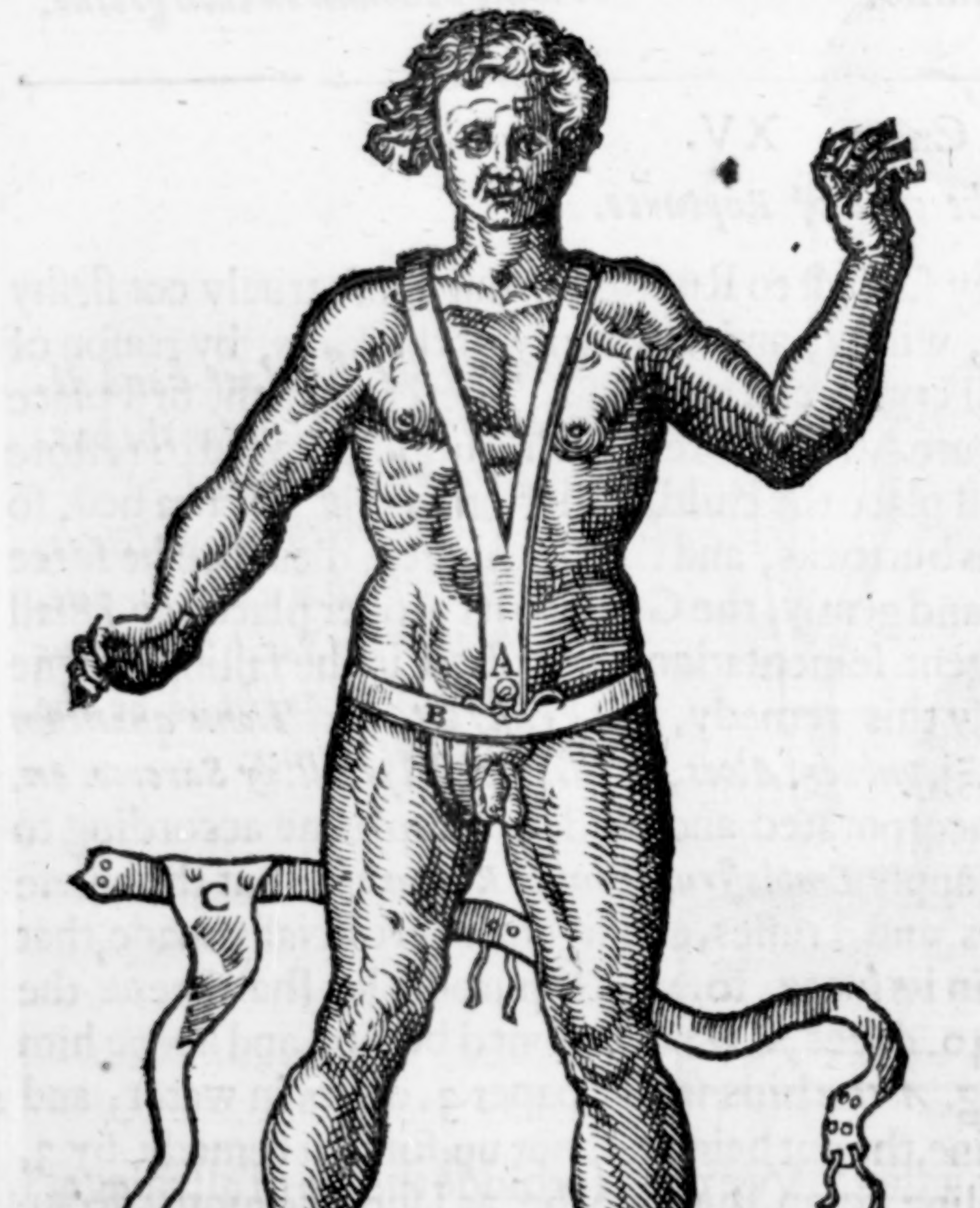
The reaſon of this cure.

Another medicine.

But we muſt deſpaire of nothing in this diſeaſe, for the cure may happily proceede in men of full growth, as of fortie yeare old, who have filled the three demenſions of the body, as this following relation teſtifies.

A notable Hiſtory.

There was a certaine Prieſt in the Pariſh of Saint *Andrewes*, called *Iohn Moret*, whoſe office it was to ſing an Epiſtle with a loud voice as often as the ſolemnitie of the day, and the thing required. Wherefore ſeeing he was troubled with the *Enterocele*, he came to me, requiring helpe, ſaying, he was troubled with a grievous paine, eſpecially then, when he ſtretched his voice in the Epiſtle.



The Figure of a man broken on one ſide, wearing a Truſſe, whoſe bolſter muſt have three Tuberoſities, two on the upper, and one on the lower part; and there muſt be a hollowneſſe betweene them in the middeſt, that they may not too ſtraitly preſſe the ſharebone, and ſo cauſe paine. The manner of ſuch a Truſſe, I found out not long agoe, and it ſeemed better and ſafer than the reſt for to hinder the falling downe of the Gut and Kall.

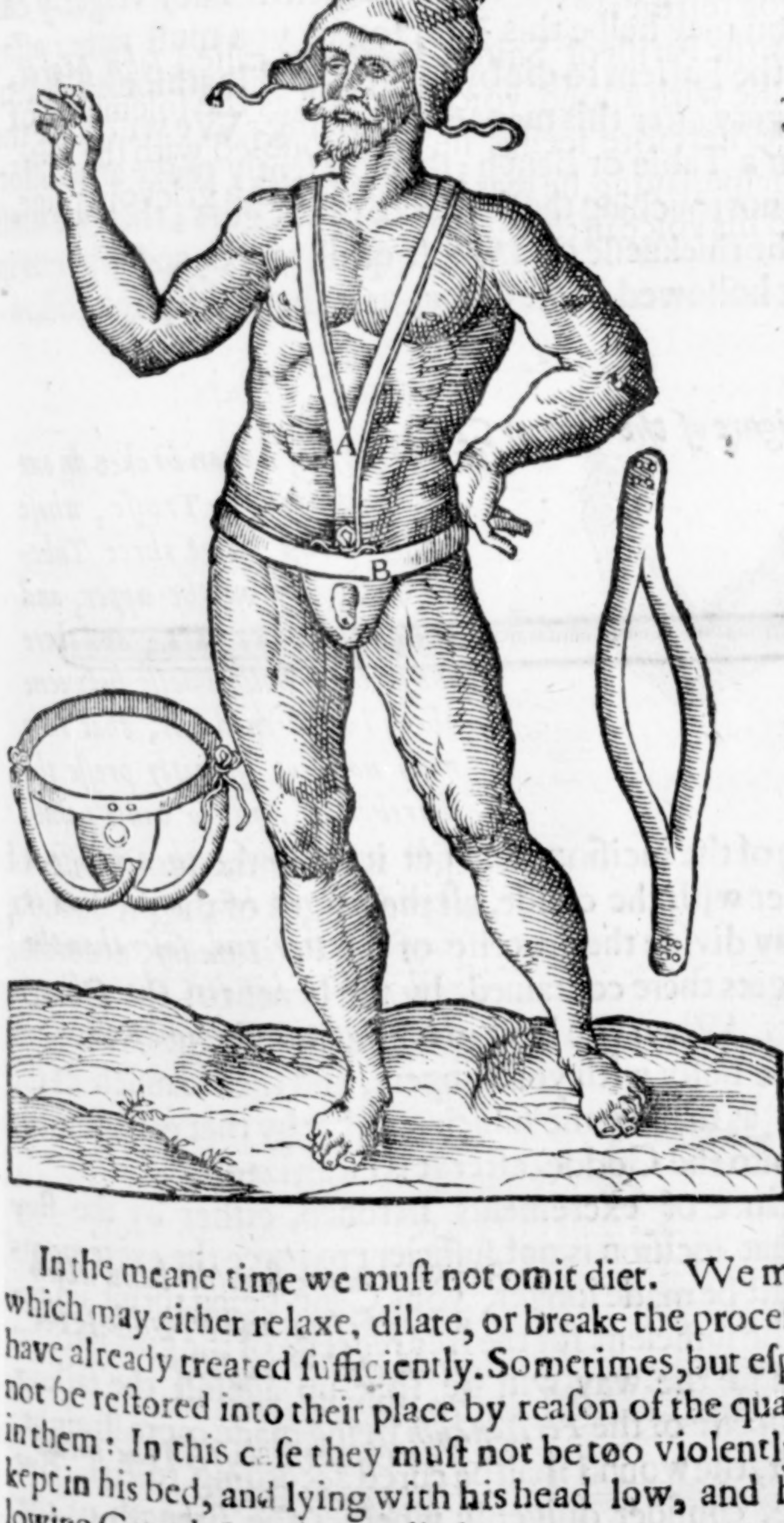
A. *Shewes the ſhoulder band which is tied before and behinde to the girdle of the Truſſe.*

B. *The Truſſe.*

C. *The Cavitie left in the midſt of the Tuberoſities.*

When I had ſeene the bigneſſe of the *Enterocele*, I perſwaded him to get another to ſerve in his place; ſo having gotten leave of M. **Curio** Clearke, and Deacon of Divinity, he committed himſelfe unto me: I handled him according unto Art, and commanded him he ſhould never goe without a Truſſe; and he followed my directions. When I met him ſome five or ſixe yeares after, I asked him how he did, he anſwered very well, for he was wholy freed from the diſeaſe with which he was formerly troubled; which I could not perſwade my ſelfe of, before that I had found that hee had told mee the truth, by the diligent obſervation of his genitals. But ſome ſixe moneths after, he dying of a Pleuriſie, I came to *Curio's* houſe where hee died, and deſired leave to open his body, that I might obſerve whether nature had done any thing at all in the paſſage through which the gut fell down, I call God to witneſſe, that I found a certaine fatty ſubſtance about the proceſſe of the *Peritonæum* about the bigneſſe of a little egge, and it did ſticke ſo hard to that place, that I could ſcarce pull it away without the rending of the neighbouring parts. And this was the ſpeedy cauſe of his cure. But it is moſt worthy of obſervation, and admiration, that Nature but a little helped by Art, healeth diſeaſes which are thought incurable. The chiefe of the cure conſiſts in this, that we firmerly ſtay the gut in its place, after the ſame manner as theſe two Figures ſhew.

We muſt never deſpaire in diſeaſes if ſo be nature be aſſociated by Art.



Another Figure of a man having a Rupture on both ſides, ſhewing by what meanes, what kinde of Truſſe, and what ſhoulder-band he muſt be bound on each groine.

A. *Sheweth the ſhoulder-band divided in the middeſt for the putting through of the head.*

B. *The Truſſe, with two bolſters, betweene which is a hole for putting through the yard. The forme of both bolſters ought to be the ſame with the former.*

In the meane time we muſt not omit diet. We muſt forbidde the uſe of all things, which may either relaxe, dilate, or breake the proceſſe of the *Peritonæum*, of which I have already treated ſufficiently. Sometimes, but eſpecially in old men, the guts cannot be reſtored into their place by reaſon of the quantity of the excrements hardened in them: In this caſe they muſt not be too violently forced, but the Patient muſt be kept in his bed, and lying with his head low, and his knees higher up; let the following Cataplaſmes be applied.

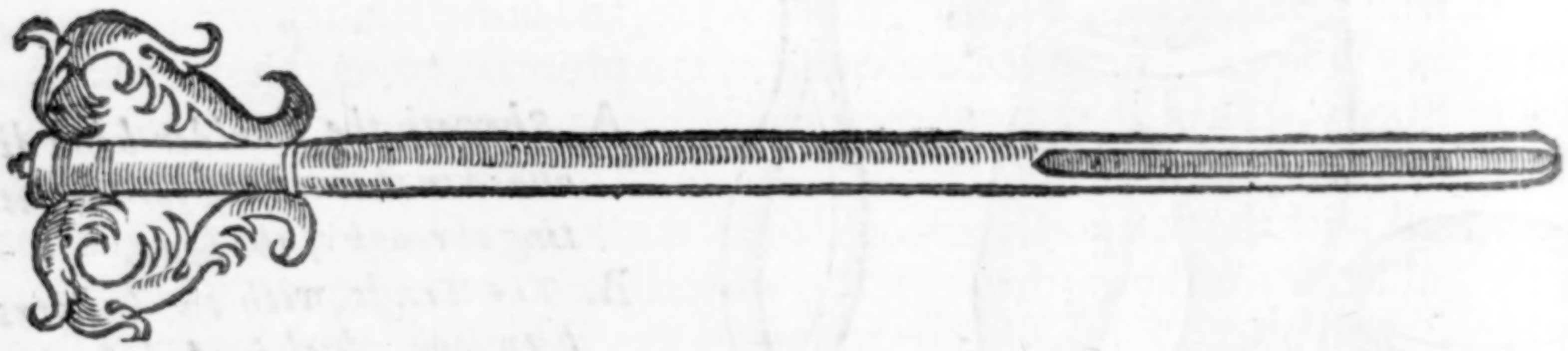
A Cataplaſme to ſoften the excrements.

℞. *rad. alth. & lil ana.* ℥ij. *ſeminis lini. & fœnug. an.* ℥ß, *fol. malvæ, viol. & pariet. an. m.* ß. Let them be boiled in faire water, afterwards beaten, and drawne through a ſearſe, adding thereto of new Butter without ſalt, and oyle of Lillies, as much as ſhall ſuffice. Make a Cataplaſme in the forme of a liquid pultis. Let it be applied hot to the Codde, and bottome of the belly; by the helpe of this remedy when it had beene applied all night, the guts have not ſeldome beene ſeene of themſelves, without the hand of a Chirurgion, to have returned into their proper place. The windineſſe being reſolved, which hindered the going backe of the excrements into another gut, whereby they might be evacuated and expelled. But if the excrements will not goe backe thus, the flatulencies, yet reſiſting and undiſcuſſed, an emollient and carminative Clyſter is to be admitted with a little Chymicall oyle of Turpentine, Dill, Iuniper or Fennill. Clyſters of Muſcadine, oyle of Wallnuts and *Aqua vitæ*, and a ſmall quantitie of any the aforeſaid oyles, are good for the ſame purpoſe.

Chymicall oyls.

It often happens that the guts cannot yet be reſtored, becauſe the proceſſe of the *Peritonæum* is not wide enough. For when the excrements are fallen downe with the gut into the codde; they grow hard by little and little, and encreaſe by the acceſſe of flatulencies cauſed by reſolution, which cauſe ſuch a tumor as cannot be put up through that hole, by which a little before it fell downe: whereby it happens that by putrifaction of the matter there contained, come inflammations, and a new acceſſe of paine; and laſtly, a vomitting and evacuation of the excrements by the mouth being hindered from the other paſſage of the fundament. They vulgarly call this affect *Miſerere mei.* That you may helpe this ſymptome, you muſt rather aſſay extreame remedies, than ſuffer the Patient to die by ſo filthy and loathſome a death. And we muſt cure it by Chirurgery after this manner following. We will binde the Patient lying on his backe, upon a Table or Bench; then preſently make an inciſion in the upper pard of the codde, not touching the ſubſtance of the guts; then we muſt have a ſilver Cane or Pipe, of the thickneſſe of a Gooſe quill, round, and gibbous in one part thereof, but ſomewhat hollowed in the other, as is ſhewed by this following Figure.

The Figure of the Pipe or Cane.



We muſt put it into the place of the inciſion, and put it under the production of the *Peritonæum* being cut together with the codde, all the length of the production; that ſo with a ſharpe knife we may divide the proceſſe of the *Peritonæum*, according to that cavity ſeparated from the guts there contained, by the benefit of the Cane in a right line not hurting the guts. When you have made an indifferent inciſion, the guts muſt gently be put up into the belly with your fingers, and then ſo much of the cut *Peritonæum* muſt be ſowed up, as ſhall ſeeme ſufficient, that by that paſſage made more ſtraight, nothing may fall into the Codde, after it is cicatrized.

But if there be ſuch abundance of excrements hardned, either by the ſtay or heate of inflammation, that that inciſion is not ſufficient to force the excrements into their place, the inciſion muſt be made longer, your Cane being thruſt up towards the belly: ſo that it may be ſufficient for the free regreſſe of the guts into the belly. Then ſow it up as is fit, and the way will be ſhut up againſt the falling downe of the guts or kall; the proceſſe of the *Peritonæum* being made more ſtraight, by reaſon of the ſuture; for the reſt, the wound ſhall be cured according to Art. But before you undertake this worke, conſider diligenly whether the ſtrength of the Patient be ſufficient, neither attempt any thing before you have foretold, and declared the danger to the Patients friends.

CHAP. XVI.

Of the golden Ligature, or the Punctus Aureus, as they call it.

The Chirurgicall cure by the golden Tye.

IF the Rupture will not be cured by all theſe meanes, by reaſon of the great ſolution of the continuity of the relaxt, or broken *Peritonæum*, and the Patient by the conſent of his friends there preſent, is ready to undergoe the danger in hope of recovery; the cure ſhall be attempted by that which they call the *Punctus Aureus*, or Golden tie.

For which purpoſe a Chirurgion which hath a skilfull and ſure hand, is to be imploied. He ſhall make an inciſion about the ſhare bone, into which he ſhall thruſt a Probe like to the Cane, a little before deſcribed; and thruſt it long wayes under the proceſſe of the *Peritonæum*, and by lifting it up, ſeparate it from the the adjoining fibrous, and nervous bodies, to which it adheres; then preſently draw aſide the ſpermatique veſſels, with the *Cremaſter*, or hanging muſcle of the teſticle; which being done, he ſhall draw aſide the proceſſe it ſelfe, alone by it ſelfe: And he ſhall take as much thereof, as is too lax, with ſmall and gentle mullets, perforated in the middeſt, and ſhall with a needle, having five or ſixe threeds, thruſt it through as neere as hee can to the ſpermaticke veſſels, and cremaſter muſcles. But the needle alſo muſt be drawne againe into the middeſt of the remnant of the proceſſe, taking up with it the lipps of the wound; then the threed muſt be tied on a ſtrait knot, and ſo much thereof muſt be left after the ſection, as may be ſufficient to hang out of the wound. This threed will of it ſelfe be diſſolved by little and little by putrefaction: neither muſt it be drawne out before that nature ſhall regenerate and reſtore fleſh into the place of the ligature, otherwiſe all our labour ſhall be ſpent in vaine.

And laſtly, let the wound be clenſed, filled with fleſh, and cicatrized, whoſe callous hardneſſe may withſtand the falling of the gut, or kall.

Another manner thereof.

There are ſome Chirurgians who would performe this golden Ligature after anothe manner. They cut the skinne above the ſhare-bone where the falling downe commonly is, even to the proceſſe of the *Peritonæum*, and they wrap once or twice about it, being uncovered, a ſmall golden wyre, and onely ſtraiten the paſſage as much as may ſuffice, to amend the looſeneſſe of this proceſſe, leaving the ſpermatique veſſels at liberty. Then they twiſt the ends of the wyre twice or thrice with ſmall mullets, and cut off the remnant thereof; that which remaines after the cutting, they turne in, leaſt with the ſharpneſſe it ſhould prick the fleſh growing upon it. Then leaving the golden wyre there, they cure the wound like to other ſimple wounds, and they keepe the Patient ſome fifteene or twenty day in his bed, with his knees ſome thing higher, and his head ſome thing lower.

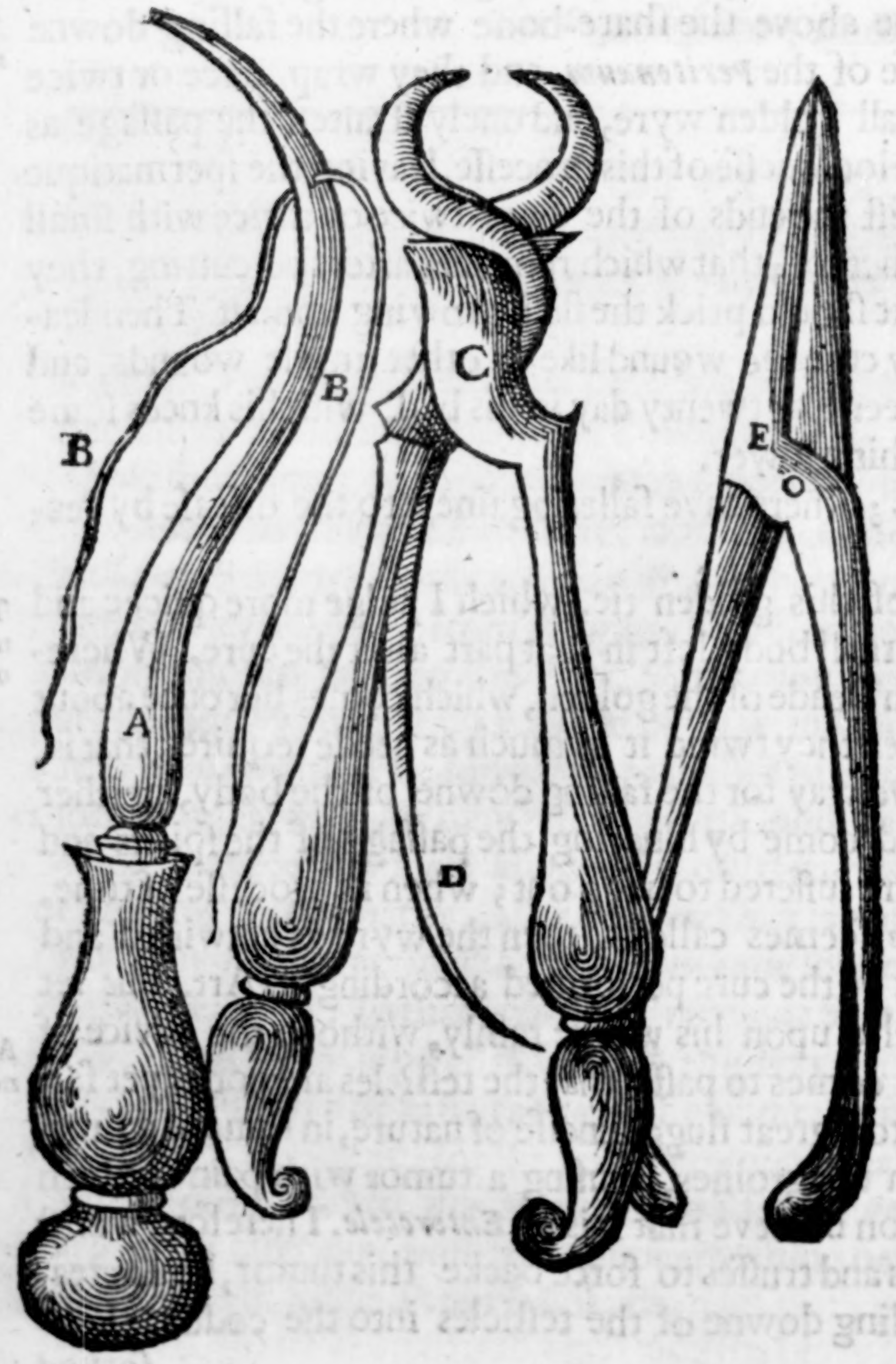
Many are healed by this meanes; others have fallen againe into the diſeaſe by reaſon of the ill twiſting of the wire.

The third manner thereof.

There is alſo another manner of this golden tie, which I judge more quicke and ſafe, even for that there is no externall body left in that part after the cure. Wherefore they wrappe a leaden wyre in ſteade of the golden, which comes but once about the proceſſe of the *Peritonæum*, then they twine it as much as neede requires, that is, not too looſely, leaſt it ſhould leave way for the falling downe of the body, neither too ſtraitly, leaſt a Gangrene ſhould come by hindring the paſſage of the ſpirits and nouriſhment. The ends thereof are ſuffered to hang out; when in proceſſe of time, this contraction of the *Peritonæum* ſeemes callous, then the wyre is untwiſted and gently drawne out. And the reſt of the cure performed according to Art. But let not the Chirurgion thruſt himſelfe upon his worke raſhly, without the advice of the Phyſition, for it diverſe times comes to paſſe, that the teſticles are not as yet fallen downe into the Codde by the too great ſluggiſhneſſe of nature, in ſome of a pretty growth, but remaines long in the groines, cauſing a tumor with paine, which thing may make a good Chirurgion beleeve that it is an *Enterocele*. Therefore whilſt he labours by repelling medicines and truſſes to force backe this tumor, he encreaſeth the paine, and hinders the falling downe of the teſticles into the codde. I obſerved

A thing to be noted.

A Hiſtory. ſerved this not long agoe in a Boy, which an unskilfull Chirurgion had long, and grievouſly troubled, as if he had had a rupture: for when I had obſerved that there was but one ſtone in the Codde, and knew the Boy was never gelt, I bid them caſt away the plaſters, and truſſes, and wiſht his Parents that they ſhould ſuffer him to run and leape, that ſo the idleing ſtone might be drawne into the Codde, which thing by little and little, and without paine, had the event, as I foretold. That the reaſon of this affect may be underſtood, we muſt know a man differs from a woman, onely in efficacie of heat; but it is the nature of ſtrong heat to drive forth, as of cold to keepe in. Hence it is that the ſtones in men hang forth in the codde, but in women they lie hid in the lower belly. Therefore it happens that in ſome males more cold by nature, the teſticles are ſhut up ſome certaine time, untill at length they are forc'ſt downe into the codde by youthfull heat. But that we may returne to our former treatiſe of the codde, although that way of cuting ruptures wants not paine and danger, yet it is ſafer than that which is performed by gelding, which by the cruelty thereof expoſes the Patient to manifeſt danger of death. For the Gelders whilſt they feare leaſt when the cure is finſhed, the relaxation may remaine, pull with violence the proceſſe of the *Peritonæum* from the parts to which it adheres, and together with it a nerve of the ſixth conjugation which runnes to the ſtones; they offer the ſame violence to the ſpermaticke veſſels; by which things enſue great paine, convulſion, effluxe of bloud, inflammation, putrefaction, and laſtly death, as I have obſerved in many whom I have diſſected, having died a few dayes after their gelding. Although ſome eſcape theſe dangers, yet they are deprived of the faculty of generation for all their life after, for performance whereof nature hath beſtowed the teſticles, as parts principally neceſſary for the conſervation of mankinde. Through which occaſion *Galen* hath not *Lib de arte medica.* feared to preferre them before the heart; becauſe the heart is the beginning of life, but the teſticles of a better life; for it is farre more noble to live well, than ſimply and *Lib. de ſem.* abſolutely to live; therefore Eunuches degenerate into a womaniſh nature, for they



A. *Shewes a croked needle, having an eye not farre from the point, through which you may put the golden wyre.*

B. B. *The golden wyre put through the eye of the needle.*

C. *The mullets or Pincers, to cut away the waſt or ſuperfluous ends of the wyre.*

D. *The ſpringe of the mullets.*

E. *The mullets to twiſt the ends of the wyre together.*

remaine without beards, their voice is weake, their courage failes them, and they turne cowards; and ſeeing they are unfit for all humane actions, their life cannot but be miſerable. Wherefore I will never ſubſcribe to the cutting out of the ſtones, unleſſe a *Sarcocele* or Gangrene invade them. But that the way of performing the *Punctus aureus* may be better knowne, I have thought good here to ſet the inſtruments, by which this operation is performed, before your view.

Another more eaſie and ſafe way to reſtore the Gut and Kall.

Lib.3. Cap.33.

THeodoricke and *Guido* have invented another way of performing this operation. They put backe into their places the Gut and Kall being fallen downe, the Patient being ſo placed, that his thighs are high and his head is ſomewhat low; then they draw aſide the lower portion of the production of the *Peritonæum*, and alſo the ſpermaticke veſſels, and cremaſter muſcle to the *Iſchium*; then by applying a cauſticke fitted to the age and diſeaſe, they burne the other part of the proceſſe, directly perpendicular to the ſhare-bone, where the Gut did fall downe. Then they pull off the eſchar thus made with a knife even to the quicke, then they apply another cauſticke in the ſame place, which may go even to the bone, then procure the falling of this Eſchar made on the foreſaid proceſſe. And afterwards they heale the ulcer which remaines, which preſently contracting ſomewhat a thicke *Callus*, ſo keeps up the Guts and Kall, that it bindes them from falling down into the Cod. This way of reſtoring the Gut and Kall, though it be ſafer and more facile; yet the Chirurgion muſt not attempt it, if the Guts or Kall ſticke ſo faſt, agglutinated to the proceſſe of the *Peritonæum*, that they cannot be ſevered, nor put backe into their places (for from the guts ſo burnt and violated, greater miſchiefe would enſue) if by the broken and too much dilated proceſſe, the bodies thereby reſtrained, make an exceeding great tumor by their falling downe; if the teſticle yet lying in the groine as in a *Bubonocele*, a kinde of *Enterocele*, being not yet deſcended into the *Scrotum* or Codde; if the Patients be not come to ſuch age as they can keepe themſelves from ſtirring, or hold their excrements whiles the operation is performed.

CHAP. XVII.

Of the cure of other kinds of Ruptures.

EPiplocele is the falling downe of the Kall into the Groine, or Codde, it hath the ſame cauſes as an *Enterocele*. The ſignes have beene explained. It is not ſo dangerous, nor infers a conſequence of ſo many evill ſymptomes, as the *Enterocele* doth, yet the cure is the ſame with the other.

What a Hydrocele is.

The ſignes.

The cure.

Hydrocele is a wateriſh tumor in the Codde, which is gathered by little and little betweene the membranes encompaſſing the teſticles, eſpecially the *Dartos* and *Erythroides*; it may be called a particular dropſie, for it proceeds from the ſame cauſes, but chiefely from the defect of native heate. The ſignes are a tumor encreaſing ſlowly without much paine, heavy, and almoſt of a glaſſie cleareneſſe, which you may perceive by holding a candle on the other ſide, by preſſing the Codde above, the water flowes downe, and by preſſing it below, it riſes upwards, unleſſe peradventure in too great a quantity it fills up the whole capacity of the Codde, yet it can never be forced or put up into the belly as the Kall or Guts may, for oft times it is contained in a Cyſte, or bagge; it is diſtinguiſhed from a *Sarcocele*, by the ſmoothneſſe and equality thereof. The cure muſt firſt be tried with reſolving, drying, and diſcuſſing medicines, repeated often before, and in the Chapter of the Dropſie; this which followes I have often tried and with good ſucceſſe.

A medicine to draw forth the contained matter.

℞, *Vng. comitiſſæ, & deſiccat. rub. an.* ℥ij. *malaxentur ſimul*; and make a medicine for your eaſe. The water by this kinde of remedy is digeſted and reſolved, or rather dried up, eſpecially if it be not in too great quantity. But if the ſwelling, by reaſon of the great quantity of water will not yeeld to thoſe remedies, there is neede of Chirurgery; the Cod and membranes wherein the water is contained, muſt be thruſt through with a Seton, that is, with a large threeſquarepointed needle, thred with a skeane of ſilke; you muſt thruſt your needle preſently through the holes of the mullets made for that purpoſe, not touching the ſubſtance of the Teſticles. The skean of thred muſt be left there, or removed twiſe or thriſe a day, that the humor may drop downe, and be evacuated by little and little. But if the paine be more vehement by reaſon of the Seton, and inflammation come upon it, it muſt be taken away, and neglecting the proper cure of the diſeaſe, we muſt reſiſt the ſymptomes.

Some Practitioners uſe not a Seton, but with a Razor, or inciſion knife, they open the lower part of the Cod, making an inciſion ſome halfe fingers breadth long, penetrating even to the contained water; alwayes leaving untouched the ſubſtance of the Teſticles and veſſels, and they keepe the wound open, untill all the water ſeemes evacuated; truly by this onely way the cure of a watery rupture whoſe matter is contained in a Cyſte, is ſafe, and to be expected; as wee have ſaid in our Treatiſe of Tumors in generall.

What a *Pneumatocele* is.

The *Pneumatocele*, is a flatulent tumor in the Codde, generated by the imbecility of heate reſiding in the part.

The Cure.

It is knowne by the roundneſſe, lenity, renitencie and ſhining. It is cured by preſcribing a convenient diet, by the application of medicines which reſolve and diſcuſſe flatulencies, as the ſeeds of Annis, Fennell, Fænugreeke, *Agnus Caſtus*, Rue, *Origanum*, other things ſet downe by *Avicen* in his Treatiſe of Ruptures. I have often uſed with good ſucceſſe for this purpoſe, *Emplaſtrum Vigonis cum mercurio*; and *Emplaſtrum Diacalcitheos*, diſſolved in ſome good wine, as Muſcadine, with oyle of Bayes.

What a *Sarcocele* is.

The ſignes.
Prognoſticks,

A *Sarcocele* is a tumor againſt nature, which is generated about the ſtones by a ſchyrrhus fleſh. Groſſe and viſcide humors breed ſuch kind of fleſh, which the part could not overcome and aſſimulate to it ſelfe; whence this over-abundance of fleſh proceeds, like as Warts doe. *Varices*, or ſwollen veines often aſſociate this tumor; and it increaſes with paine. It is knowne by the hardneſſe, aſperitie, inequality, and roughneſſe. It cannot be cured but by amputation or cutting it away; but you muſt diligently obſerve, that the fleſh be not growne too high, and have already ſeazed upon the Groine, for ſo nothing can be attempted without the danger of life.

The cure.

But if any may thinke, that he in ſuch a caſe may ſomewhat eaſe the patient by the cutting away of ſome portion of this ſame ſoft fleſh, he is deceived. For a *Fungus* will grow, if the leaſt portion thereof be but left, being an evill fure worſe than the former; but if the tumor be either ſmall or indifferent, the Chirurgion taking the whole tumor, that is, the teſticle, tumefied through the whole ſubſtance, with the proceſſe encompaſſing it, and adhering thereto on every ſide, and make an inciſion in the Codde, even to the tumor; then ſeparate all the tumid body, that is, the teſticle from the Codde: then let him thruſt a needle with a ſtrong threed in it, through the middeſt of the proceſſe above the region of the ſwolne teſticle; and then preſently let him thruſt it the ſecond time through the ſame part of the proceſſe; then ſhall both the ends of the threed be tied on a knot, the other middle portion of the *Peritonæum* being comprehended in the ſame knot. This being done, he muſt cut away the whole proceſſe with the teſticle comprehended therein. But the ends of the threed, with which the upper part of the proceſſe was bound, muſt be ſuffered to hang ſome length out of the wound, or inciſion of the Codde. Then a repercuſſive medicine ſhall be applied to the wound, and the neighbouring parts with a convenient ligature. And the cure muſt be performed as we have formely mentioned.

What a *Cirſocele* is.

The *Cirſocele* is a tumor of veines dilated, and woven with a various and mutuall implication about the teſticle and codde, and ſwelling with a groſſe and melancholy bloud. The cauſes are the ſame as thoſe of the *Varices*. But the ſignes are maniſeſt.

The Cure,

To heale this tumor, you muſt make an inciſion in the codde, the bredth of two fingers to the *Varix*. Then you muſt put under the varicous veine, a needle having a double threed in it, as high as you can, that you may binde the rootes thereof: then let the needle be againe put after the ſame manner about the lower part of the ſame veine, leaving the ſpace of two fingers betweene the Ligatures. But before you binde the thread of this loweſt Ligature, the *Varix* muſt bee opened in the middeſt, almoſt after the ſame manner as you open a veine in the arme to let bloud: That ſo this groſſe blood cauſing a tumor in the Cod, may be evacuated as is uſually done in the Cure of the *varices*. The wound that remaines ſhall be cured by the rules of Art after the manner of other wounds: Leaving the threads in it, which will preſently fall away of themſelves. To conclude then, it being growne callous eſpecially in the upper part thereof, where the veine was bound, it muſt be Cicatrized, for ſo afterwards the bloud cannot be ſtrained or run that way.

Hernia Humoralis.

Hernia Humoralis is a tumor generated by the confuſed mixture of many humors in the Cod or betweene the tunicles which involue the teſticles, often alſo in the proper ſubſtance of the teſticles. It hath like cauſes, ſignes and cure as other tumors. While the cure is in hand, reſt, truſſes, and fit rowlers to ſuſtaine and beare up the teſticles are to be uſed.

Chap. XVIII.

Of the falling downe of the Fundament.

The cauſes.

WHen the muſcle called the *Sphincter* which ingirts the Fundament is relaxed, then it comes to paſſe that it cannot ſuſtaine the right gut. This diſeaſe is very frequent to Children by reaſon of the too much humidity of the belly; which falling downe upon that muſcle mollifieth and relaxeth it or preſſeth it downe by an unaccuſtomed weight, ſo that the muſcles called *Levatores Ani* or the lifters up of the Fundament, are not ſufficient to beare up any longer. A great bloudy flux gives occaſion to this effect. A ſtrong endevour to expell hard excrements, the *Hamorrhoides*, which ſuppreſſed doe over-loade the right gut, but flowing relaxe it: Cold as in thoſe which goe without breeches in winter, or ſit a long time upon a cold ſtone, a ſtroake or fall upon the Holy-bone: a palſie of nerves which goe from the Holy-bone to the Muſcles the lifters up of the fundament: the weight of the ſtone being in the bladder.

The cure.

That this diſeaſe may be healed, we muſt forbid the Patient too much drincking, too often eating of broth, and from feeding on cold fruits. For locall medicines the part muſt be fomented with an aſtringent decoction made of the rinds of Pomegranetts, galls, myrtles, knotgraſſe, ſheapheards purſe, Cypreſſe nutts, Alume, and common ſalt boyled in ſmiths water or red wine. After the fomentation, the gut be annointed with oyle of Roſes or myrtles, and then let it bee gently put by little and little into its place, charging the childe if he can underſtand your meaning, to hold his breath. When the gut ſhall be reſtored, the part muſt bee diligently wiped leaſt the gut fall downe againe by reaſon of the ſlipperineſſe of the unction. Then let the powder preſcribed for the falling downe of the wombe be put into the fundament as farre as you can: Then you muſt ſtraitly binde the loynes with a ſwathe, to the middeſt whereof behinde let another be faſtned which may be tied at the *Pubes* comming along the *Perinæum*, ſo to hold up to the fundament; the better to containe it in its place, a ſpunge dipt in the aſtringent decoction. The Patient if he be of ſufficient age to have care of himſelfe, ſhall be wiſhed when hee goes to ſtoole that he ſit upon two peeces of wood being ſet ſome inch a ſunder, leaſt by his ſtrayning hee thruſt forth the gut together with the excrement; but if he can doe it ſtanding, he ſhalll never by ſtrayning thruſt forth the gut.

Hippocrates his cure.

But if the gut cannot by the preſcribed meanes bee reſtored to its place, *Hippocrates* bids that the Patient hanging by the heeles be ſhaken, for ſo the gut by that ſhaking will returne to his place: but the ſame *Hippocrates* wiſheth to annoint the fundament, becauſe that remedie having a drying faculty, hath alſo power to reſolve the flatulent humors without any acrimony, by reaſon of which the gut was the leſſe able to be contained in his place.

Chap. XIX.

Of the Paronychia.

What the *Paronychia* is.

THe *Paronychia* or *Panaris* is a tumor in the ends of the fingers, with great inflammation, comming of a maligne and venemous humor, which from the bones by the *Perioſtium* is communicated to the tendons and nerves of that part which it affecteth, whereof cruell ſymptomes doe follow, as pulſifique paine, a feaver, reſtleſſeneſſe, ſo that the affected through impatiencie of the paine are variouſly agitated like thoſe tormented with Carbuncles: for which cauſe *Guido* and *Iohannes de Vigo* judge this diſeaſe to be mortall; wherefore you muſt provide a skilfull Phyſitian for the cure of this diſeaſe, which may appoint convenient diet, purging and Blood letting. In the meane time the Surgeon, ſhall make way for the virulent and venenate matter, by making inciſion in the inner part of the finger, even to the bone alongſt the firſt joynt thereof; for *Vigo* ſaith there is not a preſenter remedy, if ſo be that it be quickly done and before the maturation of the matter; for it vindicates the finger from the corruption of the bone and nerves, and aſſwages paine, which I have often and happily tried immediatly at the beginning, before the perfect impreſſion of the virulencie.

Lib. 2. cap. 4. tract. 8.

But the wound being made you muſt ſuffer it to bleede well, then preſently let him dip his finger in ſtrong and warme vinegar, in which ſome treakle being diſſolved may draw forth the virulencie. But to appeaſe the Paine, the ſame remedies muſt be applyed to the affected part as are uſed in Carbuncles, as the leaves of Sorrell, Henbane, Hemlocke, Mandrake roaſted under the Embers and beaten in a Morter with new *Vnguentum Populeon*, or oyle of Roſes or new butter without ſalt: for ſuch like medicines alſo helpe forward ſupppuration, whileſt by their coldneſſe, they repreſſe the extraneous heat affecting the part; and ſo ſtrengthen the native heate being the author of ſuppuration: which reaſon moved the ancient Phyſitians to uſe ſuch medicines in a Carbuncle: but if by reaſon of the fearefulneſſe of the patient, or unskilfulneſſe of the Surgion, no inciſion being made, a Gangren and Sphacel ſhall poſſeſſe the part, it remaines that you cut off with your cutting mulletts as much of the part as ſhall be corrupt, and performe the reſt of the cure according to Art. Yet it doth not ſeldome happen that there may bee no neede to cut off ſuch a finger, becauſe it being corrupted together with the bone doth by little and little diſſolve into a purulent or rather ſanious and much ſtincking filth. But in this affect there is often cauſed an Eſchar by the aduſtion of putredinous heat, and ſuperfluous fleſh indued with moſt exquiſit ſence groweth underneath it, which muſt in like manner be cut off with the Mulletts that the part may receive comfort, the paine being aſwaged by the copious effuſion of blood.

Chap. XX.

Of the ſwelling of the knees.

Gal. comm. ad ſent. 1. ſer. 4. lib. 6 Epid. Gal. Com. ad ſent. 67. ſect. 2. prog.

AFter long and dangerous diſeaſes there oftentimes ariſe Tumors in the knees, and alſo in plethoricke bodies and ſuch as have evill juyce after labours and exerciſe. This kinde of diſeaſe is frequent becauſe the humor eaſily falles into the part which hath beene heated by Labour. But if ſuch tumors follow long diſeaſes, they are dangerous and difficult to cure, and therefore not to bee neglected, for bitter paine accompanieth them, becauſe the humor falling thither diſtends the Membranes, which being many involve the part; beſides that this humor participateth of a certaine virulent and maligne quality whether it be cold or hot, when it hath ſetled into thoſe parts, being ſuch as wee finde in the paines of the joynts, and in the bitings of venemous creatures.

The cure.

For the cure, if the tumor bee cauſed by blood, let a ſlender and refrigerating diet be appointed, and phlebotomy for the revulſion of the antecedent cauſe; diverſe locall medicines ſhall be uſed according to the variety of the foure times. But for to aſſwage the paine, *Anodyne* or mitigating medicines ſhall be appointed: of all which wee have ſufficiently treated in the Chapter of the cure of a Phlegmon.

And becauſe theſe parts are of exact ſence, if there be neceſſity to open the tumor, yet muſt we not doe it raſhly or unconſiderately, for feare of paine and evill accidents.

This kinde of tumor is oft times raiſed by winde contained there; in which caſe the Chirurgion muſt bee very provident, that hee bee not deceived with the ſhew of flowing of the humor, which hee ſeemes to perceive by the preſſure of his fingers, as if there were matter and humor contained therein, and ſo bee brought to open the tumor. For the winde breaking forth in ſtead of the humor, cauſeth evill ſymptomes by reaſon of the ſection raſhly made in a part ſo ſenſible.

But if watriſh humors ſhall tumifie the part, the body ſhall firſt be purged with medicines purging flegme: And then inciding, attenuating, rarifying, diſcuſſing and very drying locall medicines ſhall be uſed.

Of which wee have abundantly ſpoken in the Chapter of the *Oedema*. Yet this humor, divers times lyes deepe betweene the whirle bone and the joynt, which cauſeth it that it cannot be diſcuſſed and reſolved by reaſon of the weakeneſſe of the part and defect of heate, ſo that the adventitious humor often moves and excludes the bones from their ſeate. As I have obſerved it to have happened to many.

In which cauſe Irrigations of red wine falling ſomething high, whereby the force of the medicine may enter and more eaſily penetrate, are much commended.

CHAP. XXI.

Of the Dracunculus.

It is not as yet ſufficiently knowne what *Dracunculi* are.

I Cannot chuſe, but explaine in this place thoſe things which may bee ſpoken of that kinde of tumor againſt nature, which by the ancients is called *Dracunculus*. The matter and reaſon of theſe hath beene variouſly handled by diverſe Authours, ſo that hitherto wee have nothing written of them to which wee may by right and with good reaſon adhere as a firme foundation of their eſſence.

For firſt for *Galens* opinion, *Lib. 6. de Loc. affect cap.* 3. The generation, ſaith he, of thoſe hayres which are evacuated by the Vrine is worthy no leſſe admiration than the *Dracunculi*, which as they ſay, in a certaine place of *Arabia* breede in the legges of men being of a nervous nature and like wormes in colour and thickeneſſe.

Therefore ſeeing I have heard many who have ſayd they have ſeene them, but I my ſelfe never ſaw them, I cannot conjecture any thing exactly neither of their originall nor eſſence.

Lib.4.cap. ult.

Paulus Ægineta writes that the *Dracunculi* are bred in *India* and the higher parts of *Ægypt*, like wormes in the muſculous parts of mans body, that is, the armes, thighes and legges, and alſo creepe by the intercoſtall muſcles in children with a manifeſt motion.

The cure out of *Egineta.*

But whether they be creatures indeede, or onely have the ſhape of creatures, they muſt bee cured with a hot fomentation, by which the *Dracunculus* raiſed to a juſt tumor, may put forth it ſelfe, and be pluckt away peece meale with the fingers: alſo ſuppurating Cataplaſmes may be applyed, compoſed of water, honey, wheate and barly meale.

Cap 21.lib.4. fen.3.tract.3.

Avicen being various, having no certainty whereon to reſt, inclineth one while to this, and another while to that opinion: for now he ſpeaketh of the *Dracunculi* as of creatures, then preſently of a matter and humor ſhut up in a certaine place; for the reſt he rightly delivers the cure and eſſence of this diſeaſe, as we ſhall afterwards ſhew.

Lib.14.cap. ult.

Aetius ſaith, the *Dracunculi* are like wormes, and that they are found ſometimes great, ſometimes ſmall, and that their generation is not unlike to that of flat wormes, which are bred in the guttes, for they move under the skinne without any trouble, but in proceſſe of time, the place becomes ſuppurate about the end of the *Dracunculus.* The skinne openeth, and the head thereof is thruſt forth.

But if the *Dracunculus* bee pulled, it cauſeth great greefe; eſpecially if it bee broken by too violent pulling. For that which is left cauſeth moſt vehement paine.

The cure out of *Aetius.*

Wherefore that the creature may not runne backe, the arme muſt bee bound with a ſtrong threed, and this muſt bee done every day, that the *Dracunculus* going forward by little and little, may bee intercepted by this binding, but not broken off.

The place muſt bee bathed with *Aqua Mulſa* and oyle in which wormewood or ſouthernewood hath beene boyled, or ſome other of thoſe medicines which are preſcribed for the wormes of the belly.

But if the *Dracunculus* going forward of its owne accord, may be eaſily drawne forth, we muſt doe nothing elſe: but if it bee turned to ſuppuration wee muſt not leave off the Cataplaſmes, the *Aqua Mulſa* and anointing with oyle: It was uſuall with him after the taking away of the Cataplaſmes, to apply *Emplaſtrum E Baccis Lauri*: but when it is come to ſuppuration the skinne muſt bee opened long wayes, and the *Dracunculus* ſo layd open muſt be taken away, but the skinne muſt be filled with lint, and the reſt of the ſuppurative cure uſed, ſo that the creature being ſuppurated and drawne forth, the wound may bee incarnated and cicatriſed.

Tractat.7. cap.34.
The cure out of *Rhaſis.*

Rhaſis writeth, that when the part is lifted up into a bliſter, and the veine haſtneth its egreſſe, it is good for the patient to drinke the firſt day halfe a dramme of *Aloies*, the next day a whole dramme, the third day two drammes; and in like manner the place affected muſt bee fomented with *Aloes*, for ſo that which lyes hid will breake forth: that which ſhall come forth muſt be rolled in a pipe of lead, which may equall the weight of a dramme ſo that it may hang downe, for the veine drawne by the weight will come more forth; and when that which ſhall come forth is growne much and long, it muſt be cut off, but not by the roote, but ſo that a portion thereof may remaine and hang forth, to which the leaden pipe may be faſtned, for otherwiſe it would withdraw it ſelfe into its skinne and its lurking hole, and ſo cauſe a putrid and maligne ulcer.

Therefore wee muſt gently meete with this diſeaſe, and the veine muſt be drawne by little and little out of the body untill it be all come forth that no worſe thing happen: but if by chance it ſhall happen that as much of the veine as ſhall bee come forth ſhall be cut off by the rootes, then the ulcer muſt be opened long wayes with an inciſion knife, and that ſo that whatſoever remaines thereof may bee wholy taken away. Then for ſome dayes the part muſt be annointed with butter untill whatſoever of ſuch a ſubſtance adheres, being conſumed with putrifaction ſhall flow away. Then the ulcer muſt be cured with ſarcoticke things.

Therefore *Rhaſis* thus in the ſame text expreſſeth the ſame thing by diverſe names, and armed with Iron and Lead, hee comes to the cure thereof, as if hee meant to encounter with ſome fierce beaſt.

His opinion of them.

Soranus the Phyſtian, who lived in the times of *Galen*, was of a quite contrary opinion, as *Paulus Ægineta* in the place being before cited, relates of him; as who denies the *Dracunculus* to be a living creature, but onely a condenſation of a certaine ſmall nerve, which ſeemes both to the Phyſitions and Patients to have ſome motion under the skinne.

Soranus his opinion.

Wherefore *Soranus* ſeemes to have come neerer the truth than the reſt, but yet not ſo, as throughly to underſtand, and know the eſſence of this diſeaſe, as we ſhall demonſtrate hereafter.

Manardus writes, that the *Dracunculi* are generated of evill and unlaudable blood, groſſe, hot, and melanckolicke, or of aduſt phlegme very much dryed.

Epiſt.2, lib.7.

Gorraus a moſt learned Phyſition of our time, *Lib. de Deſinitionib. medic.* denies any of our Phyſitions to be able to ſay any thing of the *Dracunculi*, becauſe it is a diſeaſe ſo unfrequent in theſe our regions, that it is ſcarce ever met withall in practice.

The Author of the Introduction, and Medicinall definitions, defines the *Dracunculus* to be a diſeaſe very like the *Varices*; then cauſing great paine, when increaſing by little, and little, it begins to bee moved: Therefore to bee cured after the ſame manner, and by the ſame method of Section and inciſion, as the *varices* are. Which thing chiefely ſeemes to have moved *Guido* to referre this kinde of diſeaſe to the *Varices* in his Tractate of Impoſtumes, becauſe it hath the ſame cauſe, and is healed with the ſame remedy as the *varices*.

But ſeeing that diverſe names have beene impoſed upon this diſeaſe by ſeverall writers, yet they all have expreſſed it by the name of a veine: for it is called by *Avicen* and *Guido*, *Vena Meden*, becauſe it is a diſeaſe frequent in the Citty *Medina*: by *Albucraſis*, *vena civilis*. *Haliabbas* hath called it *vena famoſa*; others have called it *Vena Cruris* or the legge veine. Truely the contrariety of ſo many opinions repugnant not onely amongſt themſelves, but alſo with themſelves, eaſily argueth how little certainty they had of the eſſence of this diſeaſe, who have written of it unto us: To which alſo this may be added, that none of the latter Phyſitions have written any things thereof. For although *Iacobus Dalechamphius* a man moſt converſant in every part of Phyſicke, hath written much of this matter in his booke of the French Surgery which he ſet forth ſome yeares agoe: Yet he hath left us no amplier teſtimony of his induſtry, than that hee was very diligent in collecting the writings of the Ancients concerning this thing, interpoſing no judgement of his owne, the better to aſſure us of a thing ſo controverted.

But my modeſty cannot ſo containe me, but that I ſhall chuſe rather to undergoe the cenſure of being thought too daring, than (as much as in me lyeth,) to ſuffer this queſtion of the *Dracunculi* to remaine longer ambiguous and undecided. Therefore for the preſent, I will thus order it, that refuting the opinions of the Ancients I may ſtrengthen by certaine reaſons, my opinion of the eſſence and cure of this diſeaſe.

For firſt, that *Dracunculi* are no living things, not like unto wormes, nor of like generation as the flat wormes of the belly, which was the opinion of *Aetius*, is eaſie to diſprove both by his writings, as alſo by reaſon it ſelfe. For he writes that the broad worme which hee calls *Tænia*, is as it were a certaine *Metamorphoſis* or tranſmutation of the inner tunicle of the ſmall guttes, into a quicke living and moveable body.

Aetius opinion confuted. *Tract.3.ſermo.1.cap.48.*

But no man ever ſayd, neither will he confeſſe that the *Dracunculi* have the materiall cauſes of their beginning from the tunicle of the veine, in which they are incloſed, or from the fibers of a nervous body, to which often they are adjoyned; but much leſſe from the skinne under which they lie, may they draw their materiall cauſes of their originall.

Moreover, neither can there bee any generation of wormes, nor of any other living creatures whatſoever, who have their originall from putrifaction, unleſſe

4. Meteorolog.

unleſſe by the Corruption of ſome matter, of whoſe better and more benigne part, nature by the force of the vitall heat, produceth ſome animate body, as *Ariſtotle* teacheth. Wherefore to produce this effect, it is fit the matter ſhould have ſuch a diſpoſition to putrefaction as is required for the generation of ſuch a creature as they would make the *Dracunculus* to be: It is fit the helping cauſes ſhould concurre as aſſiſtants to the principalls in the action. And it is meete the place ſhould be opportune or fit.

Naturall Melancholicke humor is moſt unapt to putrifie.

Stinke an unſeparable companion to putrifaction.

But there may be many cauſes found which may give life to the *Dracunculi*, for by the common conſent of all thoſe who have written of them, their generation proceedes from an humor melancholicke, terreſtriall and groſſe, which by its qualities both by the firſt coldneſſe and drineſſe, as alſo by the ſecond, that is Aciditie, is not onely thought moſt unfit of all others for putrefaction, but alſo is judged to reſiſt putrefaction, as that which is cauſed by heate and ſuperfluous heate humidity. Beſides, if the materiall cauſe of this diſeaſe ſhould be from an humor putrifying and turning by putrefaction into ſome living creature, it was fit there ſhould be ſtench alſo, as being an unſeparable accident of putrefaction, for thus the excrements in the guts of which the wormes are generated, doe ſmell or ſtinke.

What things uſually breed wormes.

Therefore that which exhales from their bodies which are troubled with the *Dracunculi*, ſhould be ſtincking, as it happens to thoſe ſicke of the *Pthiriaſis* or *Lowſie-evill*. But none of thoſe who have delivered the accidents or ſymptomes of the *Dracunculi* are found to have made mention hereof. But for the efficient cauſe whereby ſo great heat may be rayſed in the places next under the skin, by the efficacy whereof ſuch a creature may be formed of a matter melancholicke and moſt unapt to putrifie, as they make the *Dracunculus* to be who faine our bodies to be fruitfull monſters; eſpecially ſeeing the ſurface of the body is continually ventilated by the ſmall Arteries ſpread under the skinne, as alſo by the benefit of inſenſible tranſpiration, and breathed with the coolenes of the Aire incompaſſing us. But now the materiall and efficient cauſes being defective, or certainely very weake, for the generation of ſo laborious an effect; what coadjutory cauſe can yeeld aſſiſtance? Can the humidity of meates? for thoſe bodies which are fed with warme and moyſt meates, as milke, Cheeſe, Summer fruits, uſually breed wormes, as we are taught by experience in Children.

But on the Contrary, *Avicen* in the place before cited writeth, that meats of a hot and drie temper chiefely breed this kinde of diſeaſe, and that it is not ſo frequent to moyſt bodies and ſuch as are accuſtomed to the Bath, moyſt meats and wine moderatly taken. But whether may the condition of the Aire of thoſe regions in which it is as it were, an Endemiall diſeaſe, conferre any thing to the generation of ſuch creatures? Certainely for this purpoſe a cloudy warme and thicke ayre, ſuch as uſeth to be at the beginning of the Spring when all places reſound with frogges, toades and the like creatures bred of putrifaction.

Cap. 83. Chir. Gallic.

But on the Contrary *Iacobus Dalechampius* by the opinion of all the Phiſitions that have written of the *Dracunculi*, writes that this diſeaſe breedes in the drie and Sun burnt regions of *India* and *Arabia*; but if at the leaſt that part of our body which is next under the skinne ſhould have any opportunity to engender and nouriſh ſuch creatures, they may be judged to have written that the *Dracunculus* is a living creature with ſome probability, But if there bee no opportunity for generation in that place, nor capacity for the nouriſhment of ſuch like creatures as in the guts, if that region of the body be breathed upon with no warmeneſſe and ſmothering heat, if it be defiled with none of the groſſe excrements, as the gutts uſually are, but onely by the ſubtiller exhalation, which have an eaſie and inſenſible tranſpiration by the pores of the skin, which may ſeeme to be a juſt cauſe of ſo monſtrous and prodigious an effect: but we ſhall little profit with theſe engines of reaſon unleſſe we caſt downe at once all the Bulwarkes, with which this old opinion of the *Dracunculi* may ſtand and be defended.

For firſt they ſay, why have the ancients expreſſed this kind of diſeaſe by the name of a living thing, that is, of a *Dracunculus* or little Serpent? I anſwere, because in Phyſicke names are often impoſed upon diſeaſes rather by ſimilitude than from the truth of the thing; for the confirmation whereof, the examples of three diſeaſes may ſuffice, that of the *Cancer*, *Polypus*, and *Elephas*. For theſe have thoſe names not becauſe any Crabb, Polypus, or living Elephant may breede in the Body by ſuch like diſeaſes, but becauſe this by its propagation into the adjacent parts repreſents the feete and clawes of a Crabbe: the other repreſents the fleſh of the Sea-Polypus in its ſubſtance; and the third becauſe ſuch as have the Leproſie have their skinne wrinckled, rough, and horrid with ſcales and knots, as the skinne of a living Elephant. So truely this diſeaſe of which wee now enquire ſeemes by good right to have deſerved the name *Dracunculus*, becauſe in its whole conformation, colour, quality and production into length and thickneſſe it expreſſeth the image of a Serpent. But whence, will they ſay (if it be without life) is that manifeſt motion in the matter? We reply that the humor the cauſe of this diſeaſe is ſubtill and hot, and ſo runnes with violence into the part whence it may ſeeme to move. But when the *Dracunculi* are ſeparated, why doe they put their heads as it were out of their holes? we anſwer, in this the ancients have beene very much deceived, becauſe after the ſuppuration the ulcer being opened, ſome nervous body being layde bare, thruſt forth and ſubjected it ſelfe to the ſight, which by the convulſive and ſhaking motion might expreſſe the crooked creeping of a Serpent. But they will ſay, paine happens not unleſſe to things indued with ſence and life, but this *Dacunculus* when he is drawne too violently eſpecially if hee be broken, thereby will cauſe extreame paine: we doe anſwer, that the concluſion doth not follow and is of no conſequence, for theſe paines happen not unleſſe when the unprovident Surgeon drawes or pulls inſteed of the *Dracunculus* ſome nervous or membranous body ſwolne and repleate with an aduſt humor, whence there cannot but be great paine that part being pulld which is the author of ſence. But it is childiſh to ſay that the *Dracunculus* feeles, for that it cauſeth ſharpe paines to the living body in which it is. Therefore that at laſt we may determine ſomething of the nature, eſſence and generation of theſe *Dracunculi*, I dare boldly affirme it is nothing elſe but a tumor and abſceſſe bred from the heat of the bloud in a venenate kinde. Such bloud driven by the expulſive facultie through the veines to the Externall parts, eſpecially the limits, that is the Armes and Legges, cauſeth a tumor round and long often ſtretched from the joynt of the ſhoulder even to the wriſt, or from the groine even to one of the Anckles with tenſion, heat, renitency, pricking paine, and a feaver. But this tumor is ſomewhiles ſtretched forth ſtraight, otherwhiles into oblique and crooked tumors, which hath beene the cauſe that many taken with this kind of diſeaſe, and having their limbes ſo infolded as with the twinings of a Serpent would ſay they had a Serpent. I have thus much to ſay of the *Dracunculi*, eſpecially of thoſe of our owne country.

Why they are called *Dacunculi*.

For the cure, it is not unlike to the cure of a Phlegmon ariſing from a defluxion, for heere alſo in like manner the remedies muſt bee varied according to the foure times of the diſeaſe, and the ſame rule of diet, phlebotomy and purging muſt be obſerved which is before preſcribed in the cure of a Plegmon.

The Cure.

The mention of the *Dracunculi* calls to my memorie another kinde of Abſceſſe, altogether as rare. This our French men name *Cridones*, I thinke *a Crinibus*.i. from hayres: it chiefly troubles children and prickes their backes like thornes. They toſſe up & downe being not able to take any reſt. This diſeaſe ariſeth from ſmall haires which are ſcarce of a pins length, but thoſe thicke and ſtrong. It is cured with a fomentation of water more than warme, after which you muſt preſently apply an oyntment made of honey and wheaten flower; for ſo theſe haires lying under the skin are allured and drawne forth; and being thus drawne, they muſt be plucked out with ſmall mullets. I imagine this kinde of diſeaſe was not knowne to the ancient Phiſitions.

So the *Malum pilare in Ariſtotle cap.* 1. *lib.* 7. *hiſt. animal.*

The End of the Eighth Booke.

OF VVOUNDS IN GENERALL.

THE NINTH BOOKE.

CHAP. I.

What a Wound is, what the kindes and differences thereof are, and from whence they may be drawne, or derived.

What a Wound properly is,

A Wound is a ſolution of Continuity, cauſed by a ſtroake, fall, or bite, newly done, bloody, and with putrifaction, and filth. They alſo call it a new ſimple ulcer; for the ſolution of continuity happens to all parts of the body; but according to the diverſity of the parts, it hath divers names amongſt the Greekes. For in the fleſh it is called *Helcos*, in the bone *Catagma*, in the nerve *Spaſma*, in the ligament *Thlaſma*, in the veſſelles *Apoſpaſma*, in the Muſcles *Regma*: and that ſolution of continuity, which happens in the veſſells, their mouths being open, is termed *Anaſtomaſis*, that which happens by eroſion, *Anauroſis*; that which is generated by ſweating out and tranſcolation, *Diapedeſis*. That theſe may bee the more eaſily underſtood, I have thought good to deſcribe them in the following table.

Divers appellations of wounds according to the varieties of the parts.

A Table of the differences of Wounds.

The differences of wounds are drawne or taken,	*From the nature of the parts in which they are made or happen. But theſe parts are*	*Either ſimilar and theſe,*	*Either ſoft as the*	*Glandules,* *Fleſh, Fat,* *Marrow.*
			Or hard as	*A Bone,* *A Griſtle.*
			Or of a middle conſiſtence, as the	*Membranes,* *Ligaments,* *Fibers, Veſſells,* *Nerves, Veines,* *Arteries.*
		Or Organicall and theſe either.	*Principall as the*	*Braine, Heart, Liver, to which ſome ad the womb and Teſticles.*
			Or ſerving the principall, as	*The Weaſon,* *Lungs, gullet,* *Stomacke, Gutts,* *Bladder.*
			Or neither	*The Eares, Noſe, Feete, Hands, and other of the ſame kinde.*

- *From their proper eſſence, from whence they are called,*
  - *Simple wounds*
    - *When there is no complication of any other diſeaſe or ſymptome beſides.*
  - *Or compound,*
    - *When there is a complication of ſome one or more diſeaſes, which unleſſe they be taken away, wee muſt not hope for to cure the wound.*
- *From their quantity according to which they are called,*
  - *Great;*
  - *Indifferent,*
    - *Long, Broad,*
    - *Deepe.*
    - *Short, Narrow,*
    - *Superficiarie.*
  - *Little,*
- *From their figure, according to which they are named,*
  - *Straight,*
  - *Oblique,*
  - *Cornered:*

Chap. II.

Of the cauſes of Wounds.

Divers denominations from their cauſes,

ALL things which may outwardly aſſayle the body with force and violence, may be counted the cauſes of wounds; which are called greene, and properly bloody. Theſe things are either animate, or inanimate. The animate, as the bitings, and prickings of beaſts. The Inanimate, as the ſtroake of an arrow, ſword, clubb, gunne, ſtone, a dagger, and all ſuch like things.

From the variety of ſuch like cauſes, they have divers names: for thoſe which are made by ſharpe and pricking things are called punctures: thoſe cauſed by cutting things, are called wounds or gaſhes: and thoſe which are made by heavy and obtuſe things are named Contuſions, or wounds with Contuſions.

Chap. III.

Of the ſignes of wounds.

A caution for making reports of Wounds,

WOunds are firſt knowne by ſight, and by the ſignes drawne from thence. The Chirurgion ought firſt and chiefely, to conſider, what wounds are cureable, and what not; what wounds will ſcarce admit of cure, and what may be eaſily cured; for it is not the part of a prudent Chirurgion, to promiſe cure in a deadly or dangerous and difficult wound; Leaſt he may ſeeme to have killed him, whom not the unſufficiencie of the Art, but the greatneſſe of the wound hath ſlaine.

But when the wound is dangerous, but yet without deſpaire of recovery, it belongs to him to admoniſh the Patients friends which are by, of the preſent danger, and doubtfull ſtate of the wound; that if Art ſhall be overcome by the greatneſſe thereof, hee ſhall not be thought ignorant of the Art, neither to have deceived them.

A Iugling cheating Chirurgion,

But as this is the part and duty of a good and prudent Chirurgion, ſo it is the tricke of a cheating and jugling knave, to enlarge ſmall wounds, that ſo he may ſeeme to have done a great cure, when it is nothing ſo.

But it is agreeable to reaſon, that the Chirurgion profeſſing the diſeaſe eaſie to be cured, will thinke himſelfe in credit bound by ſuch promiſes and his duty, and therefore ſeeke all meanes for the quicke recovery of the patient; leſt that which was of its owne nature ſmall, may by his negligence become great. Therefore it is expedient, he ſhould know what wounds are to be accounted great.

Lib.4.Meth. cap.6,1.

Wounds are called great out of three reſpects.

This (as *Galen* ſaith) is three wayes to be knowne; The firſt is by the magnitude and principallity of the part affected; for thus the wounds of the Braine, Heart, and of the greater veſſells, though ſmall of themſelves, yet are thought great. Then from the greatneſſe of the ſolution of continuity; for which cauſe wounds may be judged great, in which much of the ſubſtance of the part is loſt in every dimenſion, though the part be one of theſe which are accounted ſervile. Then from the malignitie; through which occaſion the wounds of the joynts are accounted great, becauſe for the moſt part, they are ill conditioned.

Chap. IIII.

Of Prognoſtickes to be made in VVounds.

What wounds are dangerous.

Thoſe Wounds are thought dangerous, wherein any large Nerve, Veine, or Artery are hurt. From the firſt there is feare of convulſion, but from the other large effuſion of the veinous, or arterious blood, whence the powers are debilitated; alſo theſe are judged evill, which are upon the arme pitts, groines, leskes, joynts and betweene the fingers; and likewiſe thoſe which hurt the head or taile of a Muſcle. They are leaſt dangerous of all other which wound onely the fleſhy ſubſtance. But they are deadly which are inflicted upon the Bladder, Braine, Heart, Liver, Lungs, Stomacke and ſmall guts. But if any Bone, Griſtle, Nerve or portion of the cheeke or prepuce, ſhall be cut away, they cannot bee reſtored. Contuſed wounds are more difficult to cure, than thoſe which are onely from a ſimple ſolution of continuity; for before you muſt thinke to heale them up, you muſt ſuppurate and clenſe them; which cannot be done in a ſhort time. Wounds which are round and circular are ſo much the worſe; for there can be no unity unleſſe by an angle, that is, a meeting together of two lines, which can have no place in round wounds, becauſe a circular figure conſiſts of one oblique line. Beſides, wounds are by ſo much thought the greater, by how much their extremes and lipps are the further diſ-joyned, which happens to round Wounds. Contrary to theſe are cornered wounds or ſuch as are made alongſt the fibers, as ſuch as may bee eaſily healed.

What leaſt dangerous. What deadly. *Hip.aphor.19, Lib.6.*

Why round Wounds are difficult to heale.

Wounds may be more eaſily healed in young men, than in old, becauſe in them nature is more vigorous, and there is a greater plenty of fruitefull, or good blood, by which the loſſe of the fleſh may be the better and more readily reſtored, which is ſlowlier done in an old body, by reaſon their blood is ſmaller in quantity and more dry, and the ſtrength of nature more languide.

Hip.lib.de ulcer.Hip.aph. 66,lib.5.

Wounds received in the Spring, are not altogether ſo difficult to heale as thoſe taken in Winter or Summer. For all exceſſe of heate and cold is hurtfull to them; it is ill for a convulſion to happen upon a Wound, for it is a ſigne that ſome Nervous body is hurt; the braine ſuffering together therewith, as that which is the originall of the Nerves. A Tumor comming upon great Wounds is good; for it ſhewes the force of nature is able to expell that which is harmefull, and to eaſe the wounded part. The organicall parts wholly cut off cannot againe be united: becauſe a vitall part once ſevered and plucked from the trunke of the body cannot any more receive influence from the heart as from a roote without which there can bee no life. The looſed continuity of the Nerves, Veines, Arteries, and alſo the bones, is ſometimes reſtored, not truely, and as they ſay, according to the firſt intention, but by the ſecond, that is, by repoſition of the like, but not of the ſame ſubſtance. The firſt intention takes place in the fleſhie parts by converting the Alimentary bloud into the proper ſubſtance of the wounded part. But the ſecond, in the ſpermatique parts in which the loſt ſubſtance may be repaired by interpoſition of ſome heterogeneous body, which nature, diligent for its owne preſervation, ſubſtitutes in place of that which is loſt: for thus the body, which reſtores and agglutinats, is no bone but a *Callus*, whoſe originall matter is from an humor ſomewhat groſſer than that, from whence the bones have their originall and beginning.

What a *Callus* is and whence it proceedes.

This humor, when it ſhall come to the place of the fracture, agglutinateth the ends of the bones together, which otherwiſe could never bee ſo knit by reaſon of their hardneſſe. The bones of children are more eaſily and ſpeedily united by reaſon of the pliantneſſe of their ſoft and tender ſubſtance. Laſtly wee muſt here admoniſh the Chirurgion, that ſmall Wounds and ſuch as no Artiſan will judge deadly, doe divers times kill by reaſon of a certaine occult and ill diſpoſition of the wounded, and incompaſſing bodies; for which cauſe we reade it obſerved by *Hippocrates*, that it is not ſufficient for the Phyſition to performe his duty, but alſo externall things muſt be rightly prepared, and fitted.

Small and contemptible Wounds often prove mortall

Aphor. 1. ſect. 1

Chap. V.

Of the Cure of Wounds in generall.

The Generall Indication of Wounds.

THe Chirurgion ought for the right cure of wounds to propoſe unto himſelfe the common and generall indication: that is, the uniting of the divided parts, which indication in ſuch a caſe is thought upon and knowne even by the vulgar: for that which is diſ-joyned deſires to bee united, becauſe union is contrary to diviſion. But by what meanes ſuch union may be procured, is onely knowne to the ſkilfull Artiſan. Therefore we attaine unto this chiefe and principall Indication by the benefit of nature as it were the chiefe Agent, and the work of the Chirurgion as the ſervant of nature. And unleſſe nature ſhall be ſtrong the Chirurgion ſhall never attaine to his conceived, and wiſhed for end: therefore that he may attaine hereto, he muſt performe five things; the firſt is, that if there bee any ſtrange bodies, as peeces of Wood, Iron, Bones, bruiſed fleſh, congealed blood, or the like, whether they have come from without, or from within the body, and ſhall be by accident faſtened or ſtucke in the wound, he muſt take them away, for otherwiſe there is no union to be expected.

Five things neceſſary for uniting wounds.

Another is, that he joyne together the lippes of the Wound; for they cannot otherwiſe be agglutinated and united. The third is, that he keepe cloſe together the joyned lippes. The fourth, that he preſerve the temper of the wounded part, for the diſtemper remaining, it is impoſſible to reſtore it to its unity. The fifth is, that he correct the accidents, if any ſhall happen, becauſe theſe urging, the Phyſition is often forced to change the order of the cure.

All ſtrange and externall bodies muſt bee taken away, as ſpeedily as is poſſible, becauſe they hinder the action of nature intending unity, eſpecially if they preſſe or pricke any Nervous body, or Tendon, whence paine or an Abſceſſe may breede in any principall part, or other ſerving the principall.

Yet if by the quicke and too haſty taking forth of ſuch like bodies there bee feare of cruell paine or great effuſion of bloud, it will bee farre better to commit the whole worke to nature than to exaſperate the Wound by too violent haſtening.

For nature by little and little will exclude, as contrary to it, or elſe together with the *Pus*, what ſtrange body ſoever ſhall be contayned in the wounded part. But if there ſhall be danger in delay, it will bee fit the Chirurgion fall to worke quickely, ſafely, and as mildely as the thing will ſuffer: for effuſion of blood, ſwooning, convulſion and other horrid ſymptomes, follow upon the too rough and boyſtrous handling of Wounds, whereby the patient ſhall be brought into greater danger than by the wound it ſelfe.

Therefore he may pull out the ſtrange bodies, either with his fingers, or with inſtruments, fit for that purpoſe: but they are ſometimes more eaſily and ſometimes more hardly pulled forth, according as the body infixed is either hard or eaſie to be found or pulled out. Which thing happens according to the variety of the figure of ſuch like bodies; according to the condition of the part it ſelfe, ſoft, hard, or deepe, in which theſe bodies are faſtened more ſtraitly or more looſely;

and then for feare of inferring any worſe harme, as the breaking of ſome Veſſell; but how wee may performe this firſt intention, and alſo the expreſſion of the inſtruments neceſſary for this purpoſe, ſhall be ſhowne in the particular treaties of wounds made by Gun-ſhot, Arrowes and the like.

Ligatures and Sutures for to conjoyne and hold together the lippes of wounds.

But the Surgeon ſhall attaine to the ſecond and third ſcope of curing wounds by two and the ſame meanes, that is, by ligatures and ſutures: which notwithſtanding before hee uſe, hee muſt well obſerve whether there be any great fluxe of blood preſent, for he ſhall ſtoppe it if it be too violent; but provoake it, if too ſlow, (unleſſe by chance it ſhall be powred out into any capacity or belly) that ſo the part freed from the ſuperfluous quantity of blood may be leſſe ſubject to inflammation. Therefore the lippes of the wounds ſhall be put together, and ſhall bee kept ſo joyned by ſuture and ligatures: Not truly of all, but onely of thoſe which both by their nature, and magnitude, as alſo by the condition of the parts in which they are, are worthy and capable of both the remedies. For a ſimple and ſmall ſolution of continuity, ſtands onely in neede of the Ligature which we call incarnative, eſpecially, if it be in the Armes or Legges; but that which divides the Muſcles tranſverſly, ſtands in need of both Suture and Ligature; that ſo the Lippes which are ſomewhat farre diſtant from each other, and as it were drawne towards their beginnings, and ends, may bee conjoyned.

If any portion of a fleſhy ſubſtance by reaſon of ſome great cut ſhall hang downe, it muſt neceſſarily be adjoyned and kept in the place by ſuture. The more notable and large Wounds of all the parts, ſtand in need of Suture, which doe not eaſily admit a Ligature, by reaſon of the figure and ſite of the part in which they are, as the Eares, Noſe, Hairy-ſcalpe, Eie-liddes, Lippes, Belly and Throat.

Three ſorts of Ligatures:

What an incarnative Ligature is.

There are three ſorts of Ligatures, by the joynt conſent of all the Ancients. They commonly call the firſt, a Glutinative or Incarnative; the ſecond Expulſive, the third Retentive. The Glutinative or Incarnative is fit for ſimple, greene, and yet bloody wounds. This conſiſts of two ends, and muſt ſo be drawne, that beginning on the contrary part of the wound, wee may ſo goe upwards, partly croſſing it, and going downewards againe, we may cloſely joyne together the lippes of the Wound. But let the Ligature be neither too ſtrait, leaſt it may cauſe inflammation or paine; nor too looſe, leaſt it be of no uſe, and may not well containe it.

What an expulſive.

The Expulſive Ligature is fit for ſanious and fiſtulous ulcers, to preſſe out the filth contained in them. This is performed with one Rowler, having one ſimple head; the beginning of binding muſt bee taken from the bottome of the *Sinus*, or boſome thereof; and there it muſt be bound more ſtraightly, and ſo by little and little going higher, you muſt remit ſomething of that rigour, even to the mouth of the Vlcer. That ſo (as we have ſaid) the ſanious matter may be preſſed forth.

What the retentive.

The Retentive Ligature is fit for ſuch parts as cannot ſuffer ſtraight binding, ſuch are the Throat, Belly, as alſo all parts oppreſſed with paine; For the part vexed with paine, abhorreth binding. The uſe thereof, is to hold to locall Medicines. It is performed with a Rowler, which conſiſts ſome whiles of one, ſome whiles of more heads. All theſe Rowlers ought to be of linnen, and ſuch as is neither too new, nor too old; neither too courſe, nor too fine. Their breadth muſt be proportionable to the parts to which they ſhall bee applyed; the indication of their largeneſſe being taken from their magnitude, figure and ſite. As wee ſhall ſhew more at large in our Tractates of Fractures and Diſlocations.

What the rowlers muſt bee made of.

Why and how the temper of the wounded part muſt be preſerved.

The Chirurgion ſhall performe the firſt ſcope of curing Wounds, which is of preſerving the temper of the Wounded part, by appointing a good order of Diet by the Preſcript of a Phyſition, by uſing univerſall and locall Medicines. A ſlender, cold, and moyſt Diet muſt be obſerved, untill that time be paſſed, wherein the patient may be ſafe and free from accidents which are uſually feared. Therefore let him bee fed ſparingly, eſpecially if he be plethorick; he ſhall abſtaine from ſalt and ſpiced fleſh, and alſo from wine; If he ſhall be of a Cholerick or Sanguine nature: In ſteed of wine he ſhall uſe the decoction of Barly or Liquerice, or Water and Sugar. He ſhall keepe himſelfe quiet; for reſt is (in *Celſus* opinion) the very beſt Medicine. Hee ſhall avoyde Venery, Contentions, Brawles, Anger, and other perturbations of the mind, When hee ſhall ſeeme to bee paſt danger, it will bee time to fall by little and little to his accuſtomed maner of diet and life. Vniverſall remedies are Phlebotomies and purging, which have force to divert and hinder defluxion, wherby the temper of the part might be in danger of change.

In what wounds blood letting is not neceſſary.

For Phlebotomy it is not alwayes neceſſary, as in ſmall wounds and bodies, which are neither troubled with ill humours, nor plethoricke: But it is onely required in great wounds, where there is feare of defluxion, paine, *Delirium*, Raving and unquietneſſe; and laſtly in a body that is Plethoricke, and when the joynts, tendons, or nerves are wounded. Gentle purgations muſt bee appointed, becauſe the humours are moved and inraged by ſtronger; whence there is danger of defluxion and inflammation: wherefore nothing is to be attempted in this caſe, without the advice of a Phyſition.

What medicines are to be judged agglutinative,

The Topick and particular Medicines are Agglutinative, which ought to be induced with a drying and aſtrictive quality, whereby they may hold together the lips of the wound, and drive away defluxion, having alwayes regard to the nature of the part and the greatneſſe of the diſeaſe. The Simple Medicines are *Olibanum*, *Aloes*, *Sarcocolla*, *Bole-Armenick*, *Terra ſigillata*, *Sanguis Draconis*, Common and Venice Turpentine, Gumme *Elemni*, Plantane, Horſe-tayle, the greater Comfery, *Farina Volatilis*, and many other things of this kind, which wee ſhall ſpeake of hereafter in our Antidotary.

The fifth ſcope of healing wounds, is the Correction of thoſe Symptomes or Accidents which are accuſtomed to follow wounds, which thing verily makes the Chirurgion have much to doe; For he is often forced to omit the proper cure of the diſeaſe, ſo to reſiſt the accidents and ſymptomes, as bleeding, paine, inflammation, a feaver, convulſion, palſie, talking idly, or diſtraction, and the like. Of which wee ſhall treat briefly and particularly, after we have firſt ſpoken of Sutures as much as we ſhall thinke fitting for this place.

Chap. VI.

Of Sutures.

What wounds ſtand in no need of a ſuture

WHen Wounds are made alongſt the thighes, Legs, and armes, they may eaſily want Sutures, becauſe the ſolution of continuity is eaſily reſtored by Ligatures, but when they are made overthwart, they require a Suture, becauſe the fleſh and all ſuch like parts, being cut are drawne towards the ſound parts; whereby it comes to paſſe that they part the further each from other; wherefore that they may be joyned and ſo kept, they muſt be ſowed, and if the wound be deepe, you muſt take up much fleſh with your needle; for if you onely take hold of the upper part, the wound is onely ſuperficially healed: but the matter ſhut up, and gathered together in the bottome of the wound, will cauſe abſceſſes and hollow Vlcers: Wherefore now wee muſt treate of making of Sutures.

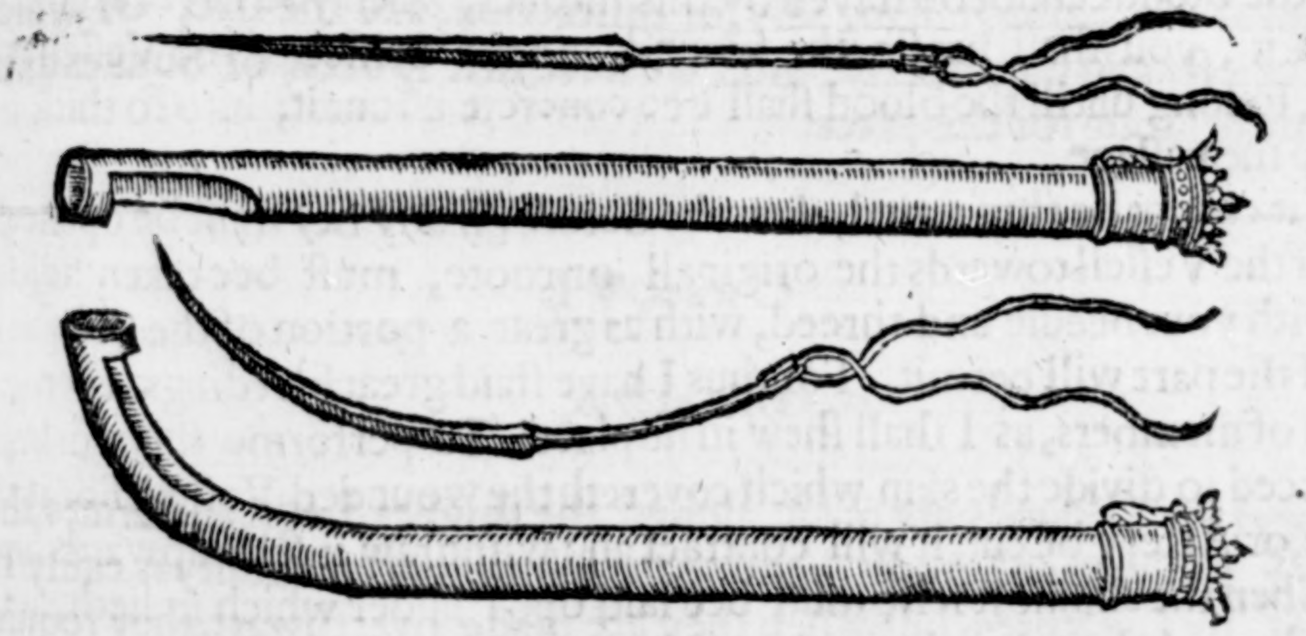
The firſt manner of ſuture.

The forme of your needle.

The forme of the pipe, with a window in it.

The firſt, called *Interpunctus*, leaves the diſtance of a fingers breadth, and therfore is fit for the greene wounds of the fleſhy parts, which cannot be cured with a Ligature, and in which no heterogeneous or ſtrange body remaines; It is performed after this manner. You muſt have a ſmooth needle with a threed in it, having a three ſquare point, that ſo it may the better enter the skin, with the head of it ſome what hollowed, that the threed may lie therein; for ſo the needle will the better goe through. You muſt alſo have a little pipe with a hole or window in the end, which you muſt hold and thruſt againſt the lip of the wound, that it bee not moved to the one ſide or other, whileſt you thruſt thorough the needle: And that wee may ſee thorough that window when the needle is thruſt thorough, and alſo draw it together with the threed, and withall hold the lip of the wound in more firmly, that it follow not at the drawing forth of the needle and threed. Having thus pierced the lips of the wound, tie a knot, neere to which cut off the threed; leaſt that if any of it bee left below the knot, it may ſo ſtick to the Emplaſters that it cannot be plucked and ſeparated from them without paine, when they are taken off. But you muſt note, the firſt ſtitch muſt be thruſt through the midſt of the wound, and then the ſecond muſt be in that ſpace which is betweene the midſt and one of the ends; but when you have made your ſtitches, the lips of the wound muſt not be too cloſely joyned, but a little ſpace muſt be left open betweene them, that the matter may have free paſſage forth, and the inflammation and paine may be avoyded: otherwiſe if they ſhall be cloſely joyned together without any diſtance betweene, a tumor after ariſing when the matter ſhall come to ſuppuration, the lips will be ſo much diſtended that they may eaſily be broken by the ſtifneſſe of the threed. But you muſt neither take hold of too much nor too little fleſh with your needle, for too little will not hold, and too much cauſeth paine and inflammation. And beſides leaves an ill ſavoured ſcarre. Yet in deepe wounds, ſuch as are thoſe which are made in the thicker Muſcles, the needle muſt be thruſt home, that ſo it may comprehend more of the fleſhy ſubſtance; leaſt the thred drawne away by the weight of the fleſh not taken hold of, may bee broken. But oft times wounds are ſeene made in ſuch places as it will be needfull, the Chirurgion ſhould have a crooked needle and pipe, otherwiſe the Suture will not ſucceede according to his deſire. Wherefore I have thought good to ſet forth both their figures, that you may uſe either as occaſion ſhall ſerve.

The Figure of Pipes with feneſtels in them, and Needles fit for Sutures.



The 2. manner of Suture.

The ſecond Suture is made juſt after the ſame manner as the Skinners ſowe their fels or furrs. And the guts muſt be ſowed with this kind of Suture, (if they ſhall be at any time wounded) that the excrements come not forth by the wound.

The third manner of Suture.

The third Suture is made by one or more needles having threed in them, thruſt through the wound, the threed being wrapped to and againe at the head and the point of the needle, as boyes uſe to faſten their needle, for feare of loſing it, in their caps, or clothes. This kind of Suture is fit in the curing and healing of Hare-lips, as we ſhall ſhew you hereafter expreſſed by a Figure.

The 4. kind of Suture termed *Gaſtroraphia.*

The fourth kind of Suture is tearmed *Gaſtroraphia*, invented for the reſtoring and uniting the great Muſcles of the *Epigaſtrium*, or lower belly, cut with a great wound together with the *Peritonæum* lying under them. The manner whereof we will ſhew in due place.

The 5. kind called the Dry Suture.

The fifth kind is called the Dry Suture, which we uſe onely in the wounds of the face, which alſo we will deſcribe in its proper place.

CHAP. VII.

Of the Flux of blood, which uſually happens in wounds.

The ſignes of bood flowing from an artery

OFt times great bleeding followes upon wounds, by reaſon of ſome veſſell cut, broken, or torne, which there is neede to heale and helpe diligently, becauſe the blood is the treaſure of nature, without which life cannot conſiſt. The Blood which floweth from an Artery, is thus knowne. It is more ſubtile, it runs forth as it were leaping, by reaſon of the vitall ſpirit contained together with it in the Arteries. On the contrary that which floweth from a Veine is more groſſe, blacke, and ſlow. Now there are many wayes of ſtenching blood.

The firſt way of ſtaying bleeding.

The firſt and moſt uſuall is that, by which the lips of the wound are cloſed, and unleſſe it be ſomewhat deepe, are contained by Medicines which have an aſtringent, cooling, drying, and glutinous faculty; As *terræ ſigill. Boli Armeni, ana.* ℥.ß. *thuris, Maſtichis, Myr hæ, Aloes, ana.* ʒ.ij. *Farinæ volat. molend.* ℥.j. *Fiat pulvis qui albumine ovi excipiatur.* Or ℞. *Thuris & Aloes, ana. partes æquales.* Let them bee mixt with the white of an Egge, and the downe of a hare, and let the pledgets bee dipped in theſe Medicines, as well thoſe which are put unto the wound as thoſe which are applied about it. Then let the wound be bound up with a double clop and fit Ligature, and the part bee ſo ſeated as may ſeeme the leaſt troubleſome and moſt free from paine.

The 2. manner of ſtanching it.

But if the blood cannot be ſtayed by this meanes, when you have taken off all that covereth it, you ſhall preſſe the wound and the orifice of the Veſſell with your thumbe, ſo long untill the blood ſhall bee concrete about it, into ſo thick a clot as may ſtop the paſſage.

The 3. way by binding of the veſſels.

But if it cannot be thus ſtaied, then the Suture (if any be) muſt be opened, and the mouth of the Veſſell towards the originall or roote, muſt bee taken hold of, and bound with your needle and threed, with as great a portion of the fleſh as the condition of the part will permit. For thus I have ſtaid great bleedings, even in the amputation of members, as I ſhall ſhew in fit place. To performe this worke, wee are often forced to divide the skin which covereth the wounded Veſſell. For if the Iugular veine, or Artery be cut, it will contract and withdraw it ſelfe upwards and downwards. Then the skinne it ſelfe muſt bee laid open under which it lieth, and thruſting a needle and threed under it, it muſt be bound as I have often done. But before you looſe the knot, it is fit the fleſh be growne up, that it may ſtop the mouth of the Veſſell, leaſt it ſhould then bleed.

An admonitiõ

But if the condition of the part ſhall be ſuch as may forbid this comprehenſion, and binding of the Veſſell, we muſt come to *Eſcharoticks*, ſuch as are the powder of burnt *Vitriol*, the powder of Mercury, with a ſmall quantity of burnt Allume; and Cawſticks which cauſe an Eſcar. The falling away of which muſt be left to Nature, and not procured by art, leaſt it ſhould fall away before that the orifice of the Veſſel ſhall be ſtopt with the fleſh, or clotted blood.

The 4. way by Eſcharoticks.

The 5. way by cutting off the veſſels.

But ſome times it happens that the Chirurgion is forced wholly to cut off the veſſell it ſelfe, that thus the ends of the cut veſſell withdrawing themſelves, and ſhrincking upwards and downewards, being hidden by the quantity of the adjacent and incompaſſing parts, the fluxe of blood, which was before not to bee ſtaid, may bee ſtopped with leſſe labour. Yet this is an extreame remedy and not to bee uſed, unleſſe you have in vaine attempted the former.

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CHAP. VIII.

Of the paine which happens upon wounds.

Paines weakens the body, and cauſes defluxious.

THe paines which followes upon wounds ought to be quickly aſwaged, becauſe nothing ſo quickly dejects the powers; and it alwayes cauſes a defluxion, of how good ſoever a habite and temper the body be of; for Nature ready to yeeld aſſiſtance to the wounded part, alwayes ſends more humours to it, than are needfull for the nouriſhment thereof, whereby it comes to paſſe that the defluxion is eaſily encreaſed, either by the quantity, or quality, or by both.

Divers Anodines or medicines to aſſwage paine.

Therefore to take away this paine the author of defluxion, let ſuch Medicines bee applyed to the part as have a repelling and mitigating faculty; as ℞. *Olei Myrtini, & Roſarum, ana* ℥. ij. *Ceræ alb.* ℥. j. *Farinæ hordei,* ℥. ß. *Boli armeni, & terræ ſigillat. ana.* ʒ. vj. Melt the Waxe in the Oyles, then incorporate all the reſt, and according to Art, make a Medicine to be applyed about the part, or ℞. *Emplaſt. Diacalcith.* ℥. iv. *Ole. Roſar. & aceti, ana,* ℥. ß. *liquefiant ſimul*, and let a Medicine be made for the fore mentioned uſe. Irrigations of oyle of Roſes and Mirtiles, with the white of an Egge, or a whole Egge added thereto, may ſerve for lenitives, if there be no great inflammation; Rowlers and double cloathes moiſtened in Oxycrate, will be alſo convenient for the ſame purpoſe. But the force of ſuch Medicines muſt be often renewed, for when they are dryed, they augment the paine. But if the paine yeld not to theſe, we muſt come to narcoticke Medicines, ſuch as are the Oyle of Poppy, of Mandrake, a Cataplaſme of Henbane and Sorrell, adding thereto Mallowes and Marſh-mallows, of which we ſpoke formerly in treating of a Phlegmon.

Laſtly, we muſt give heed to the cauſe of the paine, to the kind and nature of the humour that flowes down, and to the way which Nature affects: for according to the variety of theſe things, the Medicines muſt be varied, as if heat cauſe paine, it will be aſwaged by application of cooling things; and the like reaſon obſerved in the contrary; if Nature intend ſuppuration, you muſt helpe forwards its endeavours with ſuppurating Medicines.

CHAP. IX.

Of Convulſion by reaſon of a wound.

What a Convulſion is.

A Convulſion is an unvoluntary contraction of the Muſcles (as of parts moveable at our pleaſure, towards their originall, that is, the Braine and Spinall Marrow, for by this the Convulſed member or the wholle body (if the Convulſion be univerſall) cannot be moved at our pleaſure. Yet motion is not loſt in a Convulſion as it is in a Palſie, but it is onely depraved: and becauſe ſometimes the Convulſion poſſeſſeth the whole body, otherwhiles ſome part thereof, you muſt note that there are three kinds of Convulſions in Generall.

Three kinds of an univerſal Convulſion.

The firſt is called by the Greekes, *Tetanos*, when as the whole body growes ſtiffe like a ſtake that it cannot be moved any way.

The ſecond is called *Opiſthotanos*, which is when as the whole body is drawn backwards.

Three cauſes of a convulſion. Cauſes of Repletion.

The third is termed *Emproſthotonos*, which is when the whole body is bended or crooked forwards. A particular Convulſion is, when as the Muſcle of the Eye, Tongue, and the like parts which is furniſhed with a Nerve, is taken with a Convulſion. Repletion or Inanition, Sympathy or conſent of paine cauſe a Convulſion. Abundance of humours cauſe Repletion, dulling the body by immoderate eating and drinking, and omiſſion of exerciſe, or any accuſtomed evacuation, as ſuppreſſion of the Hemorrhoids and Courſes: for hence are ſuch like excrementious humours drawne into the Nerves, with which they being replete and filled, are dilated more than is fit, whence neceſſarily becoming more ſhort, they ſuffer Convulſion. Examples whereof appeare in Leather and Lute or Viol-ſtrings, which ſwolne with moyſture in a wet ſeaſon are broken by repletion.

Cauſes of Inanition.

Immoderate vomitings, fluxes, bleedings, cauſe Inanition or Emptineſſe, wherefore a Convulſion cauſed by a wound, is deadly: as alſo by burning feavers. For by theſe and the like cauſes, the inbred and primigeneous humidity of the Nerves is waſted, ſo that they are contracted like leather which is ſhrunke up, by being held too neere the fire, or as fidle ſtrings which dryed with Summers heat, are broken with violence; ſuch a Convulſion is incurable: For it is better a Feaver follow a Convulſion, than a Convulſion a Feaver; as we are taught by *Hippocrates*, ſo that ſuch a Feaver bee proportionall to the ſtrength of the convulſifique cauſe, and the Convulſion proceede from Repletion; for the abundant and groſſe humour cauſing the Convulſion is digeſted and waſted by the feaveriſh heat.

Aph. 26. ſec. 2.

Cauſes of convulſion by conſent of paine.

The cauſes of a Convulſion by reaſon of paine, are either the puncture of a Nerve, whether it be by a thing animall, as by the biting of a venemous beaſt; or by a thing inanimate, as by the prick of a needle, thorne, or pen-knife: or great and piercing cold, which is hurtfull to the wounds, principally of the nervous parts; whereby it comes to paſſe, that by cauſing great and bitter paine in the nerves they are contracted towards their originall, that is, the Braine, as if they would crave ſuccour from their parents in their diſtreſſed eſtate. Beſides alſo, an ill vapour carried to the braine from ſome putrefaction ſo vellicateth it, that contracting it ſelfe, it alſo contracteth together with it all the Nerues and Muſcles, as we ſee it happeneth in thoſe which have the falling ſickneſſe. By which it appeares that not onely the braine it ſelfe ſuffereth together with the Nerves, but alſo the Nerves with the Braine.

Signes of a convulſion.

The ſignes of a Convulſion are difficult, painefull and depraved motions, either of ſome part or of the whole body, turning aſide of the Eyes and whole Face, a Contraction of the Lippes, a drawing in of the Cheekes as if one laughed, and an Vniverſall ſweat.

CHAP. X.

The cure of a Convulſion.

The cauſe of a Convulſion by Repletion.

THe cure of a Convulſion, is to bee varied according to the variety of the Convulſive cauſe, for that which proceeds from Repletion muſt be otherwiſe cured, than that which is cauſed by Inanition; and that which proceeds of paine, otherwiſe than eyther of them. For that which is cauſed by Repletion is cured by diſcuſſing and evacuating Medicines: as by diet conveniently appointed, by purging, bleeding, digeſtive locall Medicines, exerciſe, frictions, ſulphurious Baths and other things appointed by the preſcription of ſome learned Phyſition which ſhall overſee the cure, which may conſume the ſuperfluous and excrementitious humours that poſſeſſe the ſubſtance of the Nerves, and habit of the body. The locall remedies are Oyles, Vnguents and Liniments, with which the Neck, Back-bone and all the contracted parts ſhall be annointed. The Oyles are, the Oyle of Foxes, Bayes, Camomill, Wormes, Turpentine, of *Coſtus*, of *Caſtoreum*: The Oyntments are *Vnguentum Arragon, Agrippæ, de Althæa, Martiatum.* This may be the forme of a Liniment; ℞. *Olei Chamæm. & Laurin. ana.* ℥. ij. *Olei Vulp.* ℥. j. *Vnguenti de Althæa & Marti. an.* ℥. ß. *Axungiæ vulpis,* ℥. j. *Aquæ vitæ,* ℥. j. ß. *Ceræ quantum ſufficit.* Make a Liniment for your uſe, or ℞. *Olei Lumbric. de Spica & de Caſtoreo, ana.* ℥. iij. *Axung. hum.* ℥ j. *Sulphuris vivi,* ℥. ß. *Ceræ quantū ſufficit.* Make a Liniment, or ℞. *Vnguenti Martiati, & Agrip. an.* ℥. iij. *Olei de Terebinth.* ℥. j. ß. *Olei Salviæ,* ℥. ß. *Aquæ vitæ* ℥. j. *Ceræ* ℥. j. ß. *fiat linimentum.* But this diſeaſe is cured by ſlender diet, and ſweating with the Decoctions of *Guiacum*, becauſe by theſe remedies the groſſe, tough, and viſcide excrements, which are in fault, are digeſted.

A Convulſion proceeding of Inanition is to be cured by the uſe of thoſe things, The cure of a Convulſion cauſed by inanition.

which doe wholeſomly and moderately nouriſh. And therefore you muſt preſcribe a diet conſiſting of meats full of good nouriſhment, as broaths and cullices of Capons, Pigeons, Veale, and Mutton, boyling therein Violet and Mallow leaves. Conſerves muſt be ordained, which may ſtrengthen the debilitated powers, and humect the habit of the body, ſuch as are, the Conſerves of Bugloſſe, Violets, Borage and water Lillies. The following broath will be profitable, ℞. *Lactucæ, Bugloſ. & portul. ana. M.j. quatuor ſeminum frigid. major. an.* ℥ß. *ſeminis Barberis*, ʒ.j. Let them al be boiled with a Chicken, and let him take the broath every morning. If thirſt oppreſſe him, the following Iulep will be good. ℞. *Aquæ roſar.* ℥.iv. *Aquæ viol.* ℔.ß. *Saccari albiſſimi* ℥.vj. *fiat Iulep, utatur in ſiti.* If the patient be bound in his body, emollient and humecting Clyſters ſhall bee appointed, made of the decoction of a ſheeps head and feet, Mallowes, Marſh Mallowes, Pellitory of the wall, Violet leaves, and other things of the like faculty; or that the remedy may be more ready and quickly made: let the Clyſters be of Oyle and Milke. Topick remedies ſhall be Liniments and Bathes. Let this be the example of a Liniment. ℞. *Olei Viol. & Amygdal. dulc. ana.* ℥ ij. *Olei Lilior. & Lumbric. ana.* ℥.j. *Axungiæ porci recentis*, ℥.iij. *Ceræ novæ quantum ſufficit, fiat Linimentum*, with which let the whole ſpine and part affected be annointed: This ſhall bee the forme of an emollient and humecting Bath. ℞. *Fol. Malvæ, Bis Malvæ, Pariet. ana. M.vj. Seminis Lini & fænug. ana.* ℔.ß. *Coquantur in Aqua communi, addendo Olei Lillior.* ℔.viij. Make a Bath: Into which let the patient enter when it is warme. When he ſhall come forth of the Bath, let him be dried with warme Clothes, or reſt in his bed avoyding ſweat. But if the patient be able to undergoe the charge, it will be good to ordaine a Bath of Milk, or Oyle alone, or of them equally mixt together.

An Emolient Liniment for any Convulſion.

An Emolient and humecting Bath.

Chap. XI.

Of the cure of a Convulſion, by ſympathy and paine.

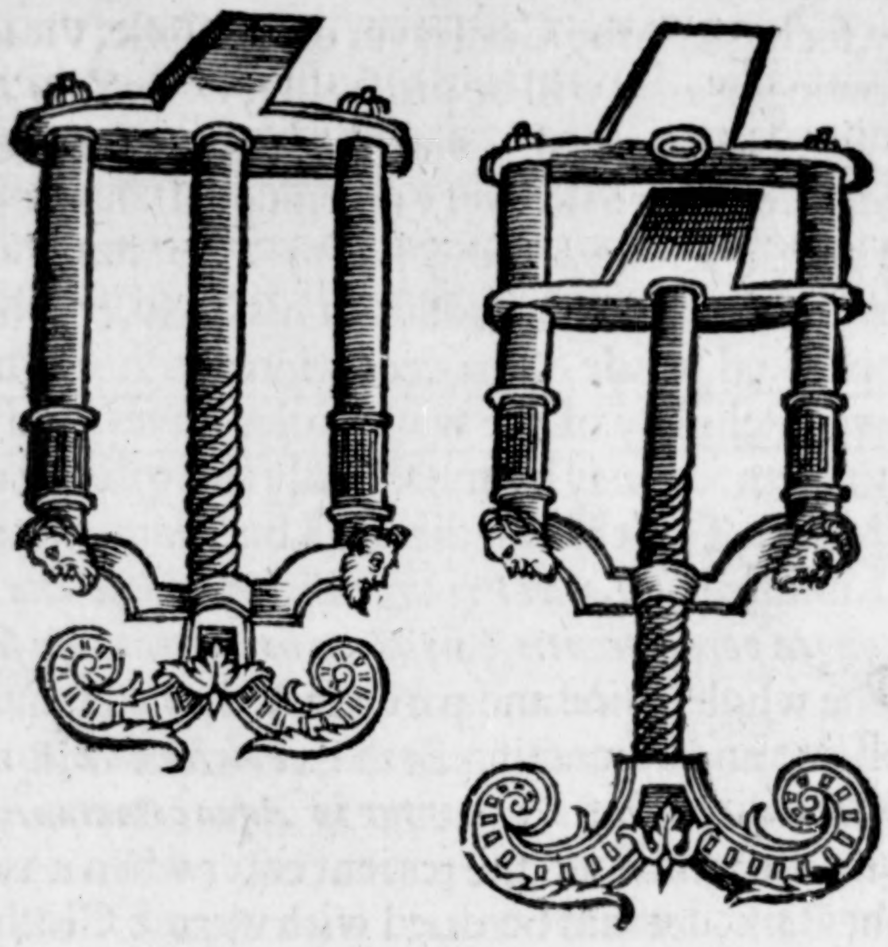
The cure of a Convulſion by a puncture, or bite.

A Convulſion which is cauſed both by conſent, of paine and Communication of the affect, is cured by remedies which are contrary to the dolorifique cauſe. For thus if it proceede from a puncture or venemous bite, the wound muſt be dilated and inlarged by cutting the skin, that ſo the venenate matter may flow forth more freely, for which purpoſe, alſo Medicines which are of a thin and liquid conſiſtence, but of a drying and digeſtive faculty ſhall be powred in, to call forth & diſſolve the virulency, as Treacle & Mithridate, diſſolved in *Aqua vitæ*, with a little of ſome Mercuriall powder: for this is a noble Antidote. Alſo cupping glaſſes and ſcarrifications will be good. Laſtly the condition of all dolorifique cauſes, ſhall bee oppugned by the oppoſition of contrary remedies, as if paine by reaſon of a pricked Nerve or Tendon, ſhall cauſe a Convulſion, it muſt preſently be reſiſted by proper remedies, as Oyle of Turpentine, of *Euphorbium*, mixt with *Aqua vitæ*, and alſo with other remedies appropriated to punctures of the Nerves. If the paine proceede from exceſſe of cold, becauſe cold is hurtfull to the Braine, the Spinall marrow, and Nerves; the patient ſhall bee placed in a hot aire, ſuch as that of a Hot-houſe or Stoave; all the Spine of his back and Convulſed parts, muſt be annoynted with the hot Liniments above mentioned: For that is much better, than ſuddenly to expoſe him from the conceaved convulcifique, cauſe to a moſt hot fire or warme Bath. In the meane time the Chirurgion muſt take diligent heede, that as ſoone as the ſignes of the Convulſion to come, or already preſent, or at hand, doe ſhew themſelves, that he put a ſticke betweene the patients teeth, leaſt they bee faſt locked by the pertinacious contraction of the Iawes: for many in ſuch a caſe have bit off their tongues, for which purpoſe he ſhall bee provided of an inſtrument called *Speculum Oris*, which may be dilated and contracted according to your mind by the meanes of a ſcrew, as the figures underneath demonſtrate, the one preſenting it open and ſomewhat twined up, and the other as it is ſhut.

A worthy *Alexipharmacum* or Antidote:

You muſt hinder the locking of the teeth.

The Figure of a Speculum Oris, *to open the teeth when they are locked or held faſt together.*



Chap. XII.

Of the Palſie.

What a Palſie is.

The differences thereof.

THe Palſie is the reſolving or mollification of the Nerves, with privation of ſenſe and motion, not truly of the whole body, but of the one part therof, as of the right or left ſide. And ſuch is properly named the Palſie: for otherwiſe and leſſe properly the reſolution of ſome one member is alſo called the Palſie: For when the whole body is reſolved, it is an Apoplexy. Therfore the Palſie ſometimes takes halfe the body, otherwhiles the uper parts which are betweene the navell and the head, otherwhiles the lower which are from the navell to the feet; ſomtimes the tongue, gullet, bladder, yard, eyes, and laſtly any of the particles of the body.

How it differs from a Convulſion.

It differs from a Convulſion in its whole nature. For in a Convulſion, there is a contention and contraction of the part, but in this a reſolving and relaxation thereof: beſides, it commonly happeneth that the ſenſe is either aboliſhed or very dull, which uſually remaines perfect in a Convulſion. There are ſome which have a pricking, and as it were great paine in the part.

The cauſes.

The cauſes are internall or externall, the internall are humors obſtructing one of the ventricles of the braine, or one ſide of the ſpinall marrow, ſo that the Animall faculty, the worker of ſenſe and motion, cannot by the Nerves come to the part to performe its action. The external cauſes are a fall, blow, and the like injuries, by which oft times the joynts are diſlocated, the ſpinall marrow wreſted aſide, and conſtrictions and compreſſions of the *Vertebræ* ariſe, which are cauſes that the Animall ſpirit cannot come to the Organes in its whole ſubſtance. But it is eaſy by skill in Anatomy perfectly to underſtand by the reſolved part the ſeat of the morbifique cauſe, for when there is a Palſie properly ſo called, that is when the right, or left ſide is wholly ſeized upon, then you may know that the obſtruction is in the braine, or ſpinall marrow; but if the parts of the head being untoucht, either of the ſides being wholly reſolved, the fault remaines in the Originall of the ſpinall marrow; if the armes bee taken with this diſeaſe, we may certainly think that the matter of the diſeaſe lies hid in the 5. 6. and 7. *Vertebra* of the neck. But if the lower members languiſh, we muſt judge the Paralitick cauſe to be contained in the *Vertebræ* of the loynes and holy bone. Which thing the Chirurgion muſt diligently obſerve that he may alwaies have recourſe to the originall of the diſeaſe. The Palſie which proceedes from a Nerve cut, or

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or exceedingly bruiſe
ſhut againſt the Anima
their native heat is lang
ous humors, neither do
that which ſucceeds an
feaver to come upon a
xing humor, to be ho
waſted, and the oppoſi
it is ill: For this is a ſig
fers it ſelfe to be defra
or oppoſite ſide.

IN the cure of th
uſed generall
ned and pruden
purpoſe, for it procure
which relaxeth the nerv
to put about the reſolve
a decoction of Wine, V
Swines bladders, halfe f
reſuſcitateth & ſtrengh
very languid: Then th
red over juſt as we hav
vapour of the followin
Angelicæ, Rutæ, ana. M
& Iuniper. Conquaſſatar.
them be all put in the V
patient ſhall keepe him
leave, then let him be
dried and reſt. Then le
Leonellus Faventinus
Nardini & petrolei, ana ℥
Granor. Iunip. Gummi
cum Oleis & Vino: bul
ſione, adde Galbani, Bd
Make an ointment in
you ſhall uſe the follo
Spicænardi, Sanguinis dra
croci, maſtic. gummi ar. bic
℥.j *Terebinthinæ venete, a*
buntur cum aqua vitæ &
may be diſtilled in *Baneo*
be anointed with the liq
of this following Medici
mat. Cinam. Caryophil. nuc
rorisſm. ſatureiæ, puleg. ala
ſtæchad. ana. P. j. *Conci a o*
fundantur. And let them
parts be moiſtened with t
ſpoone full to drinke in th
heated, and much phleg
ſumed.

or exceedingly bruiſed, is incurable, becauſe the way to the part by that meanes is ſhut againſt the Animall ſpirit. Old men ſcarce or never recover of the palſie, becauſe their native heat is languid, and they are oppreſſed with abundance of excrementitious humors, neither doth an inveterat palſie which hath long poſſeſt the part, neither that which ſucceeds an Apoplexy, yeeld us any better hope of cure. It is good for a feaver to come upon a Palſie, for it makes the diſſipation of the reſoloving and relaxing humor, to be hoped for. When the member affected with the palſie, is much waſted, and the oppoſite on the contrary, much encreaſed in quantity, heat and colour, it is ill: For this is a ſigne of the extreame weakeneſſe of the afflicted part, which ſuffers it ſelfe to be defrauded of its nouriſhment, all the proviſion flowing to the ſound or oppoſite ſide.

It is good for a feaver to happen upon a Palſie.

CHAP. XIII.

Of the cure of the Palſie.

IN the cure of the Palſie we muſt not attempt any thing, unleſſe we have firſt uſed generall remedies, diet and purging; all which care lyeth upon the learned and prudent Phyſition. The Decoction of *Guaiacum* is very fit for this purpoſe, for it procures ſweat and attenuates, digeſts and drieth up all the humidity which relaxeth the nerves: but when ſweat doth not flow it ſhall not be unprofitable to put about the reſolved members, bricks heated red hot in the fire and quenched in a decoction of Wine, Vineger, and reſolving herbs, or alſo ſtone bottles, or Oxe and Swines bladders, halfe filled with the ſame decoction; for ſuch heat which is actuall reſuſcitateth & ſtrengtheneth the heat of the part, which in this diſeaſe is commonly very languid: Then the Patient ſhall go into a Bathing-tub, which is vailed or covered over juſt as we have deſcribed in our Treatiſe of Bathes, that ſo he may receave the vapour of the following Decoction. ℞. *Fol. Salviæ, Lavend. Lauri. major. Abſinth. Thym. Angelicæ, Rutæ, ana. M.ß. Florum Chamæm. Melil. Anethi, Anthoſ. ana. P. ij. Baccar. Laur. & Iuniper. Conquaſſatar. ana.* ℥. j. *Caryophyl.* ʒ. ij. *Aquæ fontanæ & Vini albi, ana.* ℔. iv. Let them be all put in the Veſſell mentioned in the Treatiſe lately deſcribed for uſe. The patient ſhall keepe himſelfe in that Bathing-tub, as long as his ſtrength will give him leave, then let him be put into his bed well covered, where he ſhall ſweat againe, bee dried and reſt. Then let him be preſently anointed with the following ointment, which *Leonellus Faventinus* much commends, ℞. *Olei Laurini & de Terebinth. ana* ℥. iij. *Olei Nardini & petrolei, ana* ℥. j *Vini malvatici,* ℥. iv. *Aquæ vitæ,* ℥. ij. *Pyrethri, Piperis, Synap. Granor. Iunip. Gummi hederæ, anacard. Ladani puri, an.* ℥ j. ß *Terantur & miſceantur omnia cum Oleis & Vino: bulliant in vaſi duplici uſque ad Vini conſumptionem, facla forti expreſſione, adde Galbani, Bdellii, Euphorbii, Myrrhæ, Caſtorei, adipis urſi, Anatis, Ciconiæ, an.* ʒ ij. Make an ointment in forme of a liniment, adding a little wax if need ſhall require. Or you ſhall uſe the following remedy approved by many Phyſitions, ℞ *Myrrhæ & aloes, Spicænardi, Sanguinis draconis, thuris, opopanacis, Bdellii, Carpobalſami, amomi, ſarcocollæ, croci, maſtic. gummi arabici, ſtyrac. liquidæ, ladani, caſtorei, ana* ℥. ij. *Moſchi,* ʒ. j. *aquæ vitæ,* ℥. j *Terebinthinæ venetæ, ad pondus omnium, pulverabuntur pulveriſanda & gummi eliquabuntur cum aqua vitæ & aceti tantillo.* And let them all be put in fit veſſels, that they may be diſtilled in *Balneo Mariæ,* and let the ſpine of the back, and paralytick limbes be anointed with the liquor which comes from thence. I have often tried the force of this following Medicine. ℞. *rad. Angel. Ireos, floren. gentian. cyperi, ana.* ℥. j. *Calami aromat. Cinam. Caryophil. nucis Moſch. macis, ana.* ʒ. ij. *Salviæ, major. Iuæ arthriticæ, Lavend. roriſm. ſatureiæ, puleg. calament. mentaſtri, ana. M.* ß. *florum chamæm. melil. hyperic. anthos, ſtæchad. ana. P.* j. *Conciſa omnia contundantur, & in Aqua vit. & Vini malvat. an.* ℔. ij. *infundantur.* And let them be diſtilled in *Balneo Mariæ,* like the former, let the affected parts be moiſtened with the diſtilled liquor, of which alſo you may give the patient a ſpoone full to drinke in the morning with ſome Sugar. For thus the ſtomach will be heated, and much phlegme contained therein as the fuell of this diſeaſe, will be conſumed.

The decoctiō of Guaiacum is good for a Palſie.

Things actually hot good for to be applied to paraliticke mēbers.

Leon. Faventi. his ointment.

An approved ointment for the Palſie.

A diſtilled water good to waſh them outwardly, & to drinke inwardly.

Exerciſes and frictions.

Chymicall oyles.

You muſt alſo appoint exerciſes of the affected parts and frequent and hard frictions, with hot linnen clothes, that the native heat may be recalled and the excrements contained in the parts digeſted: You may alſo uſe the Chymicall oyles of Roſemary, Tyme, Lavander, Cloves, Nutmegs, and laſtly of all ſpices, the maner of extracting whereof we ſhall hereafter declare in a peculiar Treatiſe.

Chap. XIV.

Of Sowning.

What Sowning is.

Three cauſes of ſowning.

Sowning is a ſuddaine and pertinacious defect of all the powers, but eſpecially the Vitall; In this the Patients lie without motion and ſenſe, ſo that the Ancients thought that it differed from death onely in continuance of time. The cauſe of ſowning, which happens to thoſe that are wounded, is bleeding, which cauſeth a diſſipation of the ſpirits: or feare which cauſeth a ſuddaine and joint retirement of the ſpirits to the heart. Whence followes an intermiſſion of the proper duty as alſo of the reſt of the faculties, whileſt they being thus troubled, are at a ſtand. Alſo Sowning happens by a putrid and venenate vapour, carried to the heart by the Arteries, and to the Braine by the Nerves; by which you may gather that all ſowning happens by three cauſes. The firſt is, by diſſipation of the ſpirits and native heat, as in great bleeding. And then by the oppreſſion of theſe ſpirits by obſtruction, or compreſſion as in a feare, or tumult; For thus the ſpirits fly back haſtily from the ſurface and habit of the body, unto the heart and center. Laſtly, by corruption, as in bodies filled with ill humors, and in poyſonous wounds. The ſignes of Sowning are Palenes, a dewy and ſudden ſweat ariſing, the failing of the pulſe, a ſudden falling of the body upon the ground without ſenſe & motion, a coldneſſe poſſeſſing the whole body, ſo that the Patient may ſeeme rather dead, than alive. For many of theſe who fall into a ſowne dye unleſſe they have preſent helpe.

The cure of ſowning cauſed by diſſipation of ſpirits.

The cure of ſowning cauſed by a venenate aire.

The cure of Sowning cauſed by oppreſſion and obſtruction.

Therefore you ſhall helpe them, if when they are ready to fall, you ſprinckle much cold water in their face, if that the ſowning happen by diſſipation of the ſpirits, or if they ſhall be ſet with their faces upwards, upon a bed or on the ground, as gently as may be; and if you give them bread dipt in wine to hold and chew in their mouths. But if it be cauſed by a putrid vapour and poyſonous aire, you ſhall give them a little Mithridat or Treacle in *Aqua vitæ* with a ſpoone, as I uſually do to thoſe which have the plague, or any part affected with a Gangreene, or ſphacell. But if the patients cannot be raiſed out of their ſownes, by reaſon of the pertinatious oppreſſion and compreſſion of the ſpirits about the heart, you muſt give them all ſuch things as have power to diffuſe, call forth and reſuſcitat the ſpirits, ſuch as are, ſtrong wines to drink, ſweet perfumes to ſmell: You muſt call them by their owne name, lowd in their eare, and you muſt pluck them ſomewhat hard by the haires of the Temples, and neck. Alſo rub the temples, noſtrils, wreſts and palmes of the Hands with *Aqua vitæ*, wherin Cloves, Nutmegs, and Ginger have beene ſteeped.

Chap. XV.

Of Delirium (i.) Raving, *Talking idly or Doting.*

What a Symptomaticall *Delirium* is. The cauſes thereof.

Doting, or talking idly, here is uſed for a ſymptome which commonly happeneth in feavers cauſed by a wound, and inflammation; and it is a perturbation of the phantaſie, and function of the mind, not long induring. Wherefore ſuch a doting happens upon wounds, by reaſon of vehement paine, and a feaver, when as the nervous parts as the joynts, ſtomach, and middriffe ſhall be violated.

Why the brain ſuffers with the midriffe.

For the Ancients did therefore call the Middriffe *Phrena*, becauſe when this is hurt as if the mind it ſelfe were hurt, a certaine phrenſie enſues, that is, a perturbation of the Animall faculty, which is imployed in ratiocination; by reaſon of the community which the *Diaphragma* hath with the Braine, by the nerves, ſent from the ſixth

The Cure.

Conjugation, which are carried to the ſtomach. Therefore doting happens by too much bleeding, which cauſeth a diſſipation of the ſpirits, whereby it happens that the motions and thoughts of the mind erre, .as we ſee it happens to thoſe who have bled much in the Amputation of a member. And it happens by the puncture of a venemous beaſt, or from ſeed retained or corrupted in the womb, or from a Gangreen or Sphacel, from a venenate and putrid aire carried up to the braine, or from a ſudden tumult and feare. Laſtly, what things ſoever with any diſtemper eſpecially hot, do hurt and debilitate the minde. Theſe may cauſe doting by the afflux of humors, ſpecially cholerick, by diſſipation, oppreſſion or corruption of the ſpirits. Therefore if it ſhall proceede from the inflammation of the braine, and *Meninges* or Membranes therof; after purging and blood letting by the preſcription of a Phyſition, the haire being ſhaved or cut off, the head ſhall be fomented with roſe vineger, and then an Emplaſter of *Diacalcitheos* diſſolved in oyle and vineger of Roſes, ſhall be laid thereupon. Sleep ſhall be procured with Barley creames, wherein the ſeeds of white Poppy have been boyled, with broaths made of the Decoction of the cold ſeedes of Lettuce, Purſlaine, Sorrell and ſuch like. Cold things ſhall be applyed to his noſtrils, as the ſeeds of Poppy gently beaten with Roſe-water and a little vineger. Let him have merry and pleaſant Companions that may divert his mind from all cogitation of ſorrowfull things, and may eaſe and free him of cares, and with their ſweet intreaties may bring him to himſelfe againe. But if it happen by default of the ſpirits, you muſt ſeeke remedy from theſe things which have beene ſet downe in the Chapter of Sowning.

The End of the Ninth Booke.

OF THE GREENE AND BLOODY VVOVNDS OF EACH PART.

THE TENTH BOOKE.

CHAP. I.

Of the kinds or differences of a broken Scull.

NOw that we have briefly treated of wounds in generall, that is, of their differences, ſignes, cauſes, prognoſticks and cure, and alſo ſhewed the reaſon of the accidents and ſymptomes which uſually follow and accompany them; it remaines that we treate of them as trey are incident to each part, becauſe the cure of wounds muſt be diverſly performed according to the diverſity of the parts. Now we will begin with the wounds of the head. Therefore the head hath the hayry ſcalpe lightly bruiſed without any wound, otherwhiles it is wounded without a Contuſion, and ſometimes it is both contuſed and wounded: but a fracture made in the Scull, is ſometimes ſuperficiary, ſometimes it deſcends even to the *Diploe*, ſometimes it penetrats through the 2. Tables, and the Meninges into the very ſubſtance of the Braine; beſides, the braine is oft times moved and ſhaken with breaking of the internall veines, and diverſe ſymptomes happen when there appeares no wound at all in the head: of all, and every of which we will ſpeak in order, and adde their cure, eſpecially according to the opinion of the divine *Hippocrates*. He in his Booke of the wounds of the head, ſeemes to have made 4. or 5. kinds of fractures of the Scull. The firſt is called a fiſſure or fracture, the 2. a contuſion or colliſion, the 3. is termed *Effractura*, the 4. is named *Sedes*, or a ſeat; the 5. (if you pleaſe to adde it) you may call a Counterfiſſure, or as the interpreter of *Paulus* cals it, a *Reſonitus*. As when the bone is cleft on the contrary ſide, to that which receaved the ſtroake. There are many differences of theſe 5. kinds of a broken Scull. For ſome fractures are great, ſome ſmall, and others indifferent; ſome runne out to a greater length or breadth; others are more contracted; ſome reſide only in the ſuperficies; others deſcend to the *Diploe*, or elſe pierce thorough both the Tables of the Scull; ſome run in a right line, others in an oblique and circular; ſome are complicated amongſt themſelves, as a fiſſure is neceſſarily and alwayes accompanied with a Colliſion or Contuſion; and others are aſſociated with diverſe accidents, as paine, heat, ſwelling, bleeding and the like. Sometimes the Scull is ſo broken, that the membrane lying under it, is preſſed with ſhivers of the bone, as with pricking needles. Somewhiles none of the bones fals off. All which differences are diligently to be obſerved, becauſe they force us to vary the cure, and therefore for the helpe of memory, I have thought good to deſcribe them in the following Table.

The differences of a brokē head.

The kinds of a broken Scul out of *Hippocratus*.

Differences from their quantity.

Differences from their figure.

From their complication.

A Table of the fractures of the Scull.

A fracture, or ſolution of continuity in the Scull is cauſed either, by
- *Contuſion, that is, a colliſion of a thing bruiſing, hard, heavy and obtuſe, which ſhall fall or bee ſmitten againſt the head, or againſt wch the head ſhall bee knocked, ſo that the broken bones are divided, or*
  - *Keepe their naturall figure and ſite, touching each other, whence proceeds that fracture of the Scull which is called a fiſſure, which is*
    - *Either maniſeſt, & apparent, that is*
      - *To your ſight,*
      - *To your feeling,*
      - *Or inſtrument.*
    - *Or obſcure and not maniſeſt, when as not the part which received the blow is wounded, but the contrary thereto; and that happens either.*
      - *In the ſame bone, and that 2 manner of waies as*
        - *On the ſide, as for example, when the right ſide of the bone of the forehead is ſtrucken, the left is cleſt.*
        - *Or from above to below, as when not the firſt Table which received the blow is cleſt, but that which is under it.*
      - *In divers bones to wit in ſuch men as want ſutures, or have them very cloſe, or diſpoſed otherwayes then is fit, and this oppoſition is, either*
        - *From the right ſide to the left, and ſo on the contrary, as when the right* Bregma *is ſtruck, and the left cleſt.*
        - *From before to behind and the contrary, as when the forehead is ſmitten, the nowle is cleſt.*
    - *Or betweene both, that is, the obſcure & maniſeſt, as that which is termed a Capillary fiſſure, and is maniſeſted by ſmearing is over with oyle, and writing inke.*
  - *Or looſe that ſite, and that either*
    - *Wholy ſo that the particles of the broken bone removed from their ſeat, and falling down, preſſe the membrane, whence proceeds that kind of effracture which reteines a kind of attrition, when as the bone ſtrucke upon is broken as it were into many fragments, ſhivers and ſcailes, either apparent, or hid in the ſound bone, ſo that it is preſſed downe.*
    - *Or in ſome ſort; as when the broken bone is in ſome part ſeparated, but in others adheres to the whole bone, whence another kind of effracture ariſes; you may call it Arched, when as the bone ſo ſwels up, that it leaves an empty ſpace below.*
- *Or by inciſion of a ſharpe, or cutting thing, but that inciſion is made, either by*
  - Succiſſion, *when the bone is ſo cut, that in ſome part it yet adheres to the ſound bone.*
  - Reſciſſion, *when the fragment fals down wholly broken off.*
  - *Or* Seate, *when the marke of the weapon remaines imprinted in the wound, that the wound is of no more length, nor breadth than the weapon fell upon.*

Another

Another Table of the differences of a fractured Scull.

The differences of fractures common to theſe of all other parts are drawne, either from

- *Their nature, according to which fractures are cald,*
  - *Simple, as when they are found ſolitary and by themſelves.*
  - Compound and that either
    - *Mutually with themſelves, as a contuſion, or colliſion with inciſion, a fiſſure with an effracture.*
    - Or
    - *with other ſymptomes, as ſwelling, paine, heat, bleeding, convulſion and the like.*
- *Their Quantity whence they are called, great, indifferent and ſmall, according to the triple dimenſion of length, breadth and profunditie.*
- *Their figure, from whence they are called.*
  - *Right,*
  - *Oblique,*
  - *Tranſverſe,*
  - *Round,*
  - *Triangular.*
- *Their ſite, whence they are termed on the fore or backe, or the right or left, or the upper or lower part; or ſuperficiary and profound.*
- *The part, whence it is called a Fracture of the Forehead, Nowle,* Bregma, *and Stony bones; and hence it is judged, what may bee deadly, or hopefull of recovery, eaſie or difficult to cure.*

Chap. II.

Of the cauſes and ſignes of a broken Scull.

The externall cauſes.

The cauſes of a broken Scull are externall, as a fall, a blow or ſtroake with any kind of weapon, ſharpe, obtuſe, heavy, hard, the bitings of Beaſts, and many other things of the like kind. But the ſignes by which we come to know that the Scull is broken, are of two kinds; for ſome of them are found out by the reaſoning and diſcourſe of the mind, other by the ſenſe, as thoſe which lay open the wound to the eye and hand.

Rationall cauſes.

The Rationall ſignes ſhew by theſe things which have happened upon the thing it ſelfe, whether it be, and of what ſort it is. For you may know the Scull is broken, if the patient ſhall fall down with the ſtroake, or if he ſhall fall headlong from a high place upon ſome hard thing. If for ſome time after the ſtroake, he ſhal lie without ſpeaking, ſight, and hearing, if he ſhall have felt and feele much paine, ſo that he is often forced to put his hand to the wound. But alſo the weapon is to be conſidered, that is, whether it be heavy, obtuſe, pricking or ſharpe. Alſo we muſt conſider with what & how great ſtrength the ſtroake was given, and with how great anger and from what diſtance the weapon fell. Alſo he muſt conſider whether the patient receaved the blow with his head unarmed and naked; whether he fell into a ſowne preſently after the blow; whether when he came to himſelfe, he was in his right ſenſes; whether his eies were blinded, whether he was troubled with a giddines or dizines, and whether he bled at the noſe, mouth, eares, or eyes, and laſtly whether he vomited. For ***Hippocrates*** writes, that thoſe who have their braine cut, muſt neceſſarily have a feaver and vomiting of choler to enſue thereupon, which *Galen* confirming in his Commentary ſaith, that the ſame happens alſo when the wound comes to the Membranes of the braine.

Aphor. 50. ſec. 6.

Lib.8,cap.4.

Alſo a dull ſound as from a broken veſſell comming from the skull, (the hairy ſcalpe and *Pericranium* being taken off) and it being lightly ſmitten upon with an Iron probe, is ſayd to be a ſigne of a fracture thereof, as it is recorded by *Paulus Ægineta.* Truely all theſe ſignes make a great conjecture or rather aſſuredneſſe that the skull is wounded, and the braine hurt, as which cannot happen unleſſe the bone be broken, as *Celſus* hath written. Yet many have had their ſculles broken, who had no ſuch ſigne immediatly after the blow; but this is very ſeldome. But I doe not thinke fit amongſt ſo many ſignes, here to omit that which is ſet downe by *Guido.* If any (ſaith he) will know in what place the ſcull is broke, let the patient hold faſt betweene his foreteeth, one end of a lute ſtring or thread, and the Chirurgion hold the other in his hand; then let him lightly touch or play upon the ſtring with his fingers; for in the very inſtant of the ſound or ſtroke, the patient will bee certainely admoniſhed, or perfectly perceive the part of the ſcull that is broken, and as orecome and forcſt by this ſence of paine, will by lifting up his hand make demonſtration thereof. As yet I have not beene able to finde the truth hereof by experience, although I have made triall of it in many. Wherefore I cannot ſay any thing certainely of this ſigne, as neither of that which is mentioned by *Hippocrates* in *Coais Praſ.* In ſuch as you doubt, whether the bones of the ſcull be broken, or not, you muſt judge by giving them the ſtalke of Aſphodill, to chaw on both ſides of their jawes, but ſo that you bid them withall obſerve, whether they perceive any bone to crackle, or make a noyſe in their heades, for theſe which are broken ſeeme to make a noyſe.

Hippocrates and *Guidoes* conjecturall ſignes of a broken ſcull.

But paſſing over theſe things, now let us come to theſe ſignes, which may be obvious to our ſenſes.

CHAP. III.

Of the ſignes of a broken skull, which are manifeſt to our ſenſe.

Senſible ſignes of a broken ſcull before the dividing of the skinne.

These ſignes are here ſayd to be manifeſt to ſenſe, which when the bone is bared, manifeſt the wound to our eyes, fingers and probe. But if the haires ſtand upon one end in the wound, you may know the bone is broke, becauſe the haire which yeelds to the violence of the blow, cannot be ſo cut, the bone which reſiſts the ſtroake being not violated, as it is obſerved by *Hippocrates*; whererefore we may by the ſight of this one thing, before any inſpection of the wound it ſelfe, ſuſpect by a probable conjecture, that the Scull is broken, and perſwade the beholders or ſtanders by ſo much.

Lib. de vulner. cap.

Moreover we may, before we have cut the skinne acroſſe, or baid lare the bone, give a gueſſe by our feeling, whether the ſcull be broken, or no, if wee by preſſing downe our fingers neere the wound ſhall perceive the bone either to ſtand up, or be preſſed downe otherwiſe than it ſhould naturally be.

What a probe muſt be uſed in ſearching for a fracture.

The skinne being cut croſſewiſe and the bone laid bare, if the fracture be not obvious to the eye, you muſt trye with your probe, which muſt neither be too thinne nor to ſharpe, leaſt by falling into ſome naturall cranyes, it may cauſe us to ſuſpect without any cauſe that the bone is broken; neither let it be too thick, leſt the little clifts may deceive you. If when your probe comes to the bone, it meetes with nothing but that which is ſmooth and ſlippery, it is a ſigne that it is whole.

But on the contrary, if you finde it any thing rough, ſpecially where there is no ſuture, it ſhewes the bone is broken. But let the Chirurgion conſider, that the fractures are not ſeldome upon the ſutures; and that the ſutures have not alwayes one and their naturall ſite; as alſo it often comes to paſſe that the broken clefte, or cut bone can neither be perceived by your ſight, nor inſtrument; wherefore if you thinke there is any ſuch thing, by the rationall ſignes above mentioned, annointe the place with writing Incke, and oyle, and ſo you ſhall find the cracke or clift, by the meanes we ſhall ſhew you hereafter.

When you are certaine of the fracture, then you muſt diligently conſider the greatneſſe

neſſe of the diſeaſe, and apply medicines ſpeedily. Verily when a fracture chances to light upon any ſuture, the diſeaſe is hard to be knowne, unleſſe the fracture be very great, becauſe the ſutures by their clifts and roughneſſe reſemble fractures; wherefore *Hippocrates* ſaith that he was deceived by them. Now having briefely delivered the differences and ſignes of a broken ſcull, it is time to come to the ſeverall kindes thereof, with a Fiſſure.

Lib. 5. Epid. in Autonomus of *Omilum Hippocrates* was deceived by the ſutures.

CHAP. IIII.

Of a Fiſſure, being the firſt kinde of a broken ſcull.

IF the Chirurgion by the forementioned ſignes ſhall know that the ſcull is broken, or crackt, and if the Wound made in the muſculous skin ſhall not be thought ſufficient for ordering the fiſſure, then muſt he ſhave off the haire, and cut with a razour, or inciſion knife, the muſculous skinne with the *Pericranium* lying under it, in a triangular or quadrangular figure to a proportionable bigneſſe, alwayes ſhunning, as much as in him lies, the ſutures and temples; neither muſt he feare any harme to enſue hereof; for it is farre better to bare the bone by cutting the skinne, then to ſuffer the kinde and nature of the fracture to remaine unknowne, by a too religious preſervation of the skinne; for the skinne is cured without any great adoe, though pluckt off to no purpoſe.

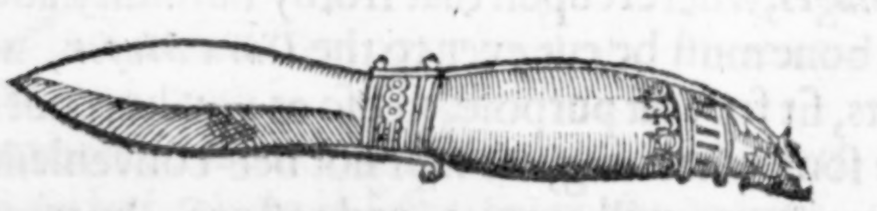
Vpon what occaſion the hairy ſcalpe muſt be cut.

Celſus.

For it is much more expedient (in *Hippocrates* opinion) to cure diſeaſes ſafely and ſecurely though not ſpeedily; than to doe it in a ſhorter time with feare of relapſe and greater inconveniencies. Let this diſſection bee made with a razour, or ſharpe knife, and if there be any Wound made in the skinne by the weapon, let one of your inciſions be made agreeable thereto.

Hippocrates.

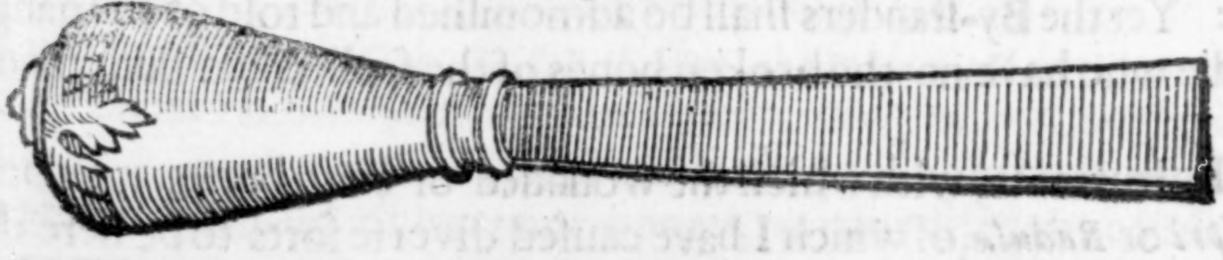
A Razour, or Inciſion knife.



Now therefore the Muſculous skinne together with the *Pericranium* muſt be divided and cut with a ſharpe razour preſſed and guided with a ſtrong and ſteddy hand; then muſt it be ſo pluckt from the bone, or ſcull lying under it, that none thereof remaine upon the bone; for if it ſhould be rent or torne with the Trepane, it would cauſe vehement feavers with inflammation. You muſt beginne to pull it backe at the corners of the lines croſſing each other with right angles, with this Chiſſell whoſe figure you ſee here expreſſed.

The manner how to pull the hairie ſcalp from the broken ſcull.

A Chiſſell or Inſtrument to pull backe or ſeparate the Pericranium *from the Scull.*



Then you muſt fill all the wound with boulſters of fine ſoft linte, that ſo the lippes may be kept further a ſunder. But you ſhall apply upon it medicines fit to ſtanch blood. But if it come ſo to paſſe that the blood flowes forth ſo violently, that it can be ſtayed by no meanes, the veſſell it ſelfe muſt be bound, after this manner

Firſt thruſt thorough the muſculous skinne on the outſide with a needle and thred, then thruſt the needle backe againe; then tye the thred on a knot on the outſide, but firſt put ſome lint rolled up to the bigneſſe of a Gooſe quill betweene the thred and the hairy ſcalpe on both ſides thereof, leaſt the ſtrait twitching of the

The manner to binde a veſſell in caſe of too much bleeding.

thred which may ſerve to ſtay the bleeding, may cut and teare the ſkinne, or cauſe paine: then muſt you raiſe his head ſomewhat higher.

A Hiſtory.

I have lately tried, and performed this upon a certaine Coach-man, who throwne from the Coach upon his head on a pavement of freeſtone, exceedingly bruiſed the hind part of the *Bregma*, for which cauſe it was fit to open the Muſculous skinne, with a croſſe inciſion, both that the congealed blood might bee preſſed out, as alſo that the fracture (if there were any) might be obſerved. But an Artery being cut in performance hereof, when as the Chirurgion who was there preſent could not ſtay the blood leaping out with violence; and the Coachman already had loſt ſo great a quantity thereof, that his ſtrength was ſo much decayed, that hee could not ſtirre himſelfe in his bed, or ſcarce ſpeake: I being called, ſhewed them by experience, that whereas aſtringent medicines were uſed before to no purpoſe, it was better to ſtay the bleeding by binding the veſſell, than to let the patient die for a childiſh feare of pricking him.

A way to finde a fracture in the ſcull, when it preſents not it ſelfe to the view at the firſt.

But that we may returne to our former matter, the Chirurgion ſhall the next day conſider with what kinde of fracture the bone is hurt; and if no ſignes of hurt appeare to the eyes, nor be perceived with your fingers and probe, yet ſome of the rationall ſignes may cauſe one to have a conjecture that there is a fracture: Then you muſt annoint as we told you before, the bared bone with writing Inke, and a little oyle of Roſes; that the cleſt or cracke may be dyed or coloured therewith, if that there be any there. Then the next dreſſing you muſt drie the bone with a linnen cloth, and ſcrape off the Inke, and oyle, with ſcraping Inſtruments made for the purpoſe: if any part thereof, ſhall be ſuncke into the bone; for if there be any cracke, it will bee black; Wherfore you muſt continue ſcraping untill no ſigne of the fiſſure remaine, or elſe untill you come even to the *Dura Mater*. But that he may be more certaine whether the fiſſure pierce thorough both the Tables of the ſcull, he muſt bid the Patient, that ſtopping his noſe & mouth, he ſtrive to breathe with a great endevour. For then bloody matter or *ſanies* will ſweat thorough the fiſſure: For the breath driven forth of the cheſt, and prohibited paſſage forth, ſwells and lifts up the ſubſtance of the braine, and the *Meninges*, whereupon that frothy humidity and *Sanies* ſweats forth.

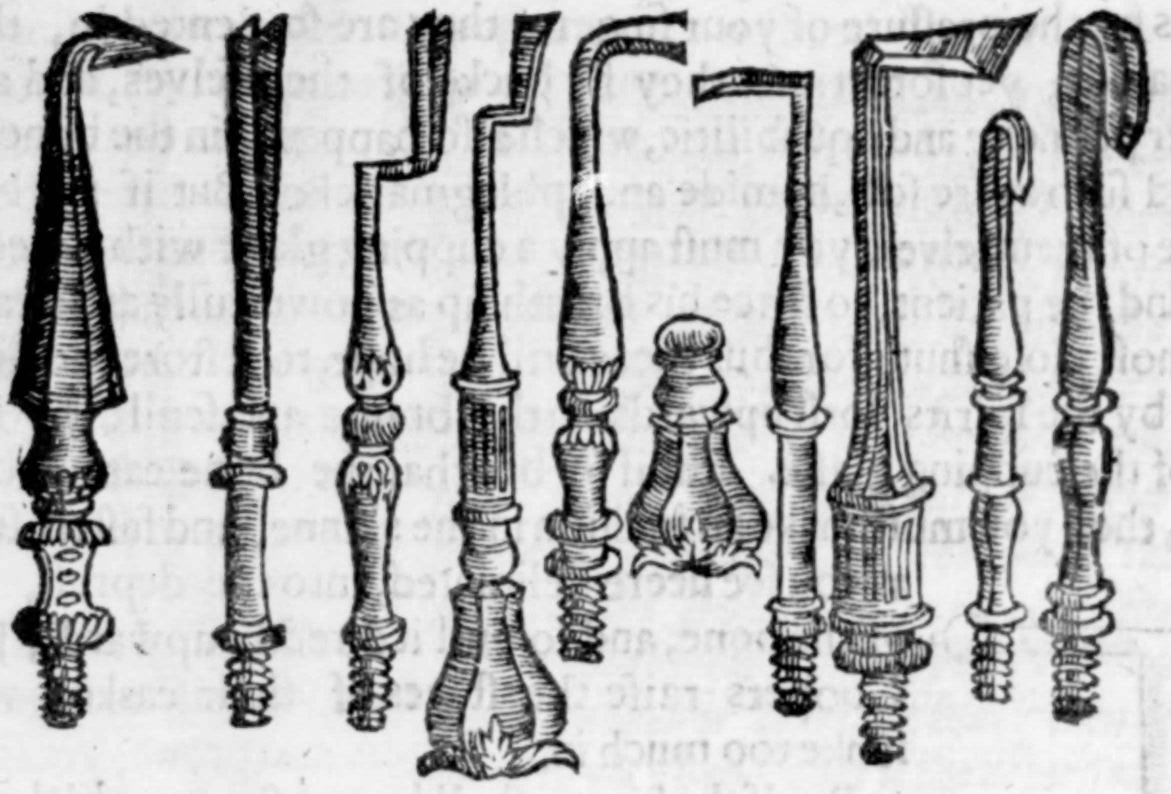
A ſigne that both the Tables are broken.

Therefore then the bone muſt be cut even to the *Dura Mater*, with *Radulæ* and other ſcraping Inſtruments, fit for that purpoſe, yet ſo as you hurt not the membrane; but if the fiſſure ſhall be ſomewhat long, it will not bee convenient to follow it all the extent thereof: for nature will repaire and reſtore the remnant of the fiſſure by generating a *Callus*; beſides alſo the Chirurgion according to *Celſus* opinion muſt take away as little of the bone as he can, becauſe there is nothing ſo fit to cover the braine, as the ſcull. Therefore it ſhall ſuffice to make a paſſage, whereby the blood and *Sanies* may paſſe and be drawne forth, leaſt that matter being ſuppreſſed may corrupt the bone, and cauſe an inflammation in the braine. But the broken bone muſt bee taken forth within three dayes if it be poſſible, eſpecially in Sommer for feare of inflammation. Yet I have oftentimes taken forth with a Trepan and with Scrapers the bones of the ſcul, after the ſeaventeenth day, both in Winter & Sommer; and that with happy ſucceſſe. Which I have the rather noted, leaſt any ſhould, at any time, ſuffer the wounded to be left deſtitute of remedie: for it is better to trie a doubtfull remedie than none: Yet the By-ſtanders ſhall be admoniſhed and told of the danger, for many more die who have not the broken bones of the ſcull taken out, than thoſe that have.

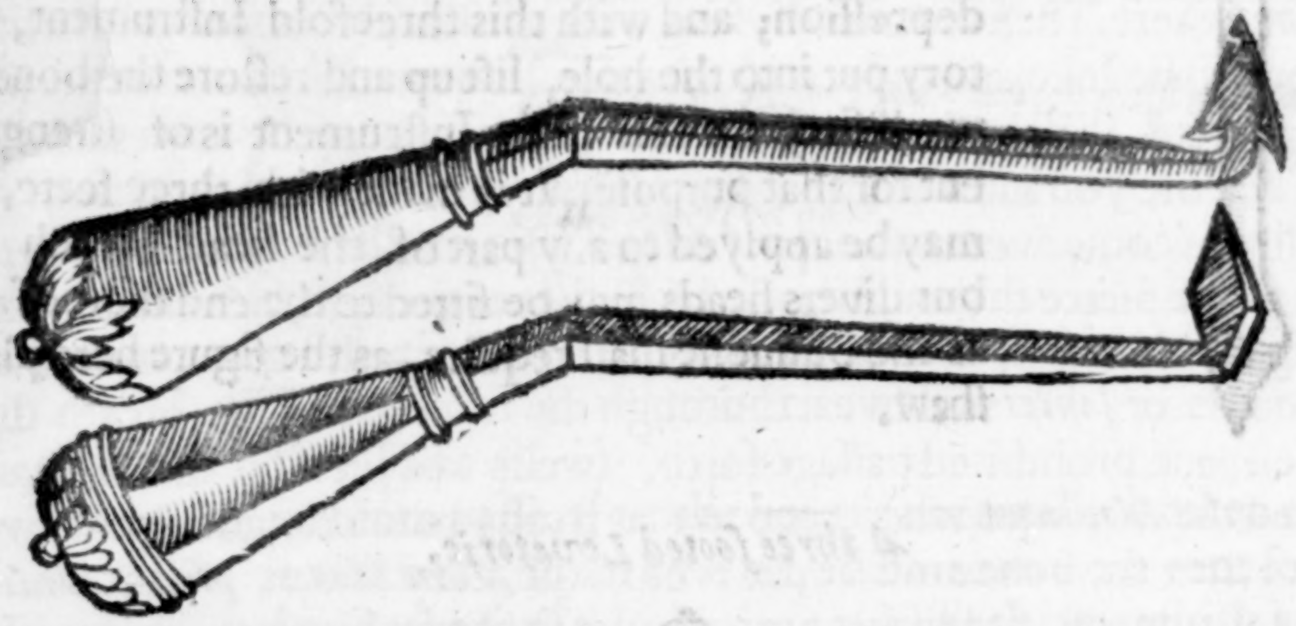
You may uſe the Trepan after the tenth day.

But the Inſtruments, with which the wounded or cleſt bones may be cut out are called *Scalpri* or *Radulæ*, of which I have cauſed diverſe ſorts to be here decyphered, that every one might take his choice, according to his minde, and as ſhall bee beſt for his purpoſe. But all of them may be ſcrued into one handle, the figure whereof I have here exhibited.

Radulæ *or* Scalpri *(i) Shavers or Scrapers.*



Radulæ *of another forme, for the better cutting of the greater bones.*



To conclude, when the ſcull ſhall be wounded or broken with a ſimple fiſſure, the Chirurgion muſt thinke he hath done ſufficient to the patient; and in his *Art*, if hee ſhall divide the bone and dilate the fiſſure or cleft with the deſcribed Inſtruments, though he have uſed no Trepan, although the fiſſure pierce thorough both the Tables. But if it doth not exceed the firſt Table, you muſt ſtay your ſcrapers as ſoone as you come to the ſecond, according to the opinion of *Paulus*: but if the bone ſhall be broken, and ſhivered into many peeces, they ſhall be taken forth with fit Inſtruments, uſing alſo a Trepan if neede ſhall require, after the ſame manner as we ſhall ſhew you hereafter.

It it ſufficient in a ſimple fiſſure to dilate it with your *Scalpri* onely and not to Trepan it.

Chap. V.

Of a Contuſion, which is the ſecond ſort of fracture.

An *Ecchymoſis*, that is, an effuſion of blood, preſently concreating under the muſculous skinne, without any wound, is oft cauſed by a violent Contuſion. This Contuſion if it ſhall be great, ſo that the skinne be devided from the ſcull, it is expedient, that you make an inciſion, whereby the blood may bee evacuated and emptied. For in this caſe you muſt wholy deſiſt from ſuppurative medicines, (which otherwiſe would be of good uſe in a fleſhy part) by reaſon that all moyſt things are hurtfull to the bones, as ſhall be ſhowne hereafter.

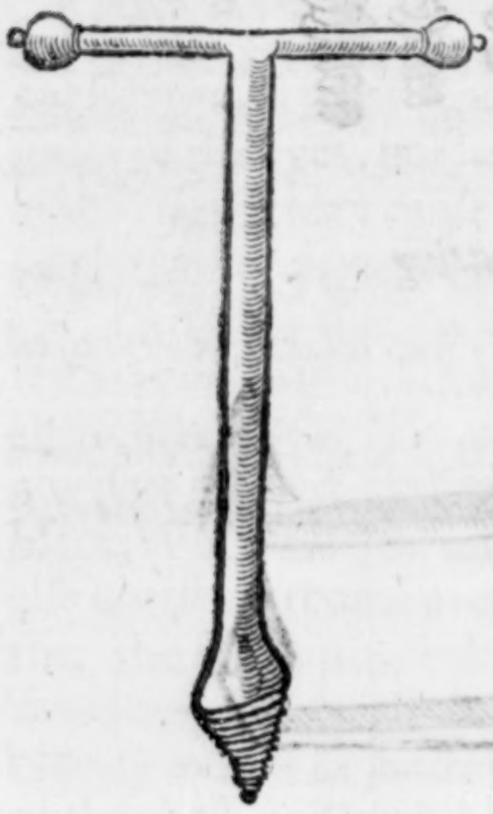
What an *Ecchymoſis* is.

How a contuſion of the ſcull muſt be cured.

Such like Contuſions more frequently happen in children, being eaſily perceived by the ſoftneſſe, and inundation of the contuſed part: forth of which oft times when I have opened them with my inciſion knife, ſerous, clotted and blackiſh blood hath

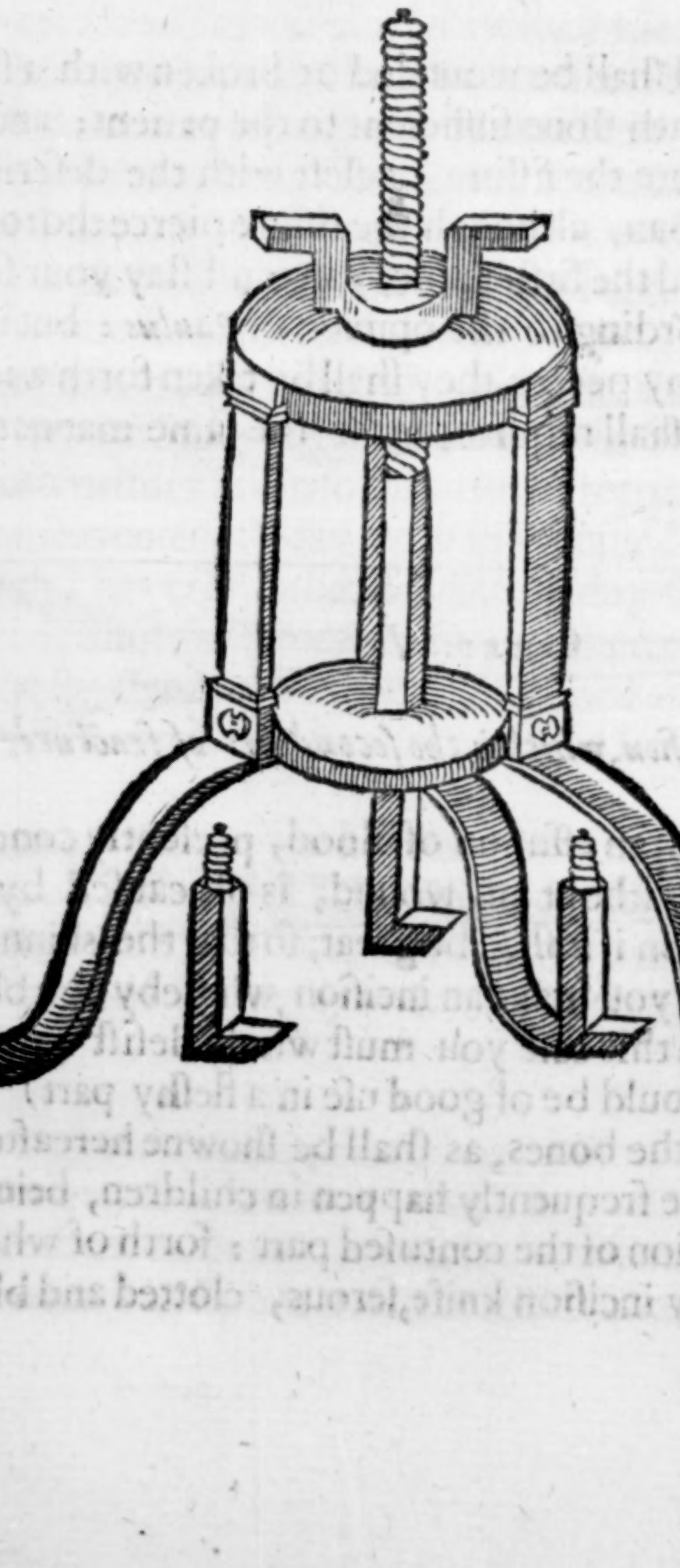
Different cures of a depreſſed ſcull.

iſſued. The reſidue of the cure is perfected by moderate compreſſion of the part, and drying medicines. Moreover the ſcull of a child, may bee preſſed downe, by a great contuſion, even as wee ſee it happens in thin veſſels of braſſe, lead, or pewter, for oft times by the preſſure of your finger, they are ſo dented in, that the print thereof remaines; yet ſometimes they fly backe of themſelves, and againe acquire their former plaineſſe and equabilitie, which alſo happens, in the bones of children, women, and ſuch as are ſoft, humide and phlegmaticke. But if the bones doe not ſpring backe of themſelves, you muſt apply a cupping glaſſe with a great flame; withall commaund the patient, to force his breath up as powerfully as he can, keeping his mouth and noſe cloſe ſhut; for thus there will be hope, to reſtore the depreſſed bone to its place, by the ſpirits forſt upwards to the braine and ſcull, by the powerfull attraction of the cupping glaſſe. But if ſo bee that the bone cannot by this meanes be reſtored, then you muſt make an inciſion in the skinne, and faſten ſuch a Trepan, as you ſee heere deliniated, into the depreſt, or ſetled part of the bone, and ſo pull it directly upwards, juſt as wee ſee Coopers raiſe the ſtaves of their caske, when they are ſunke too much in.

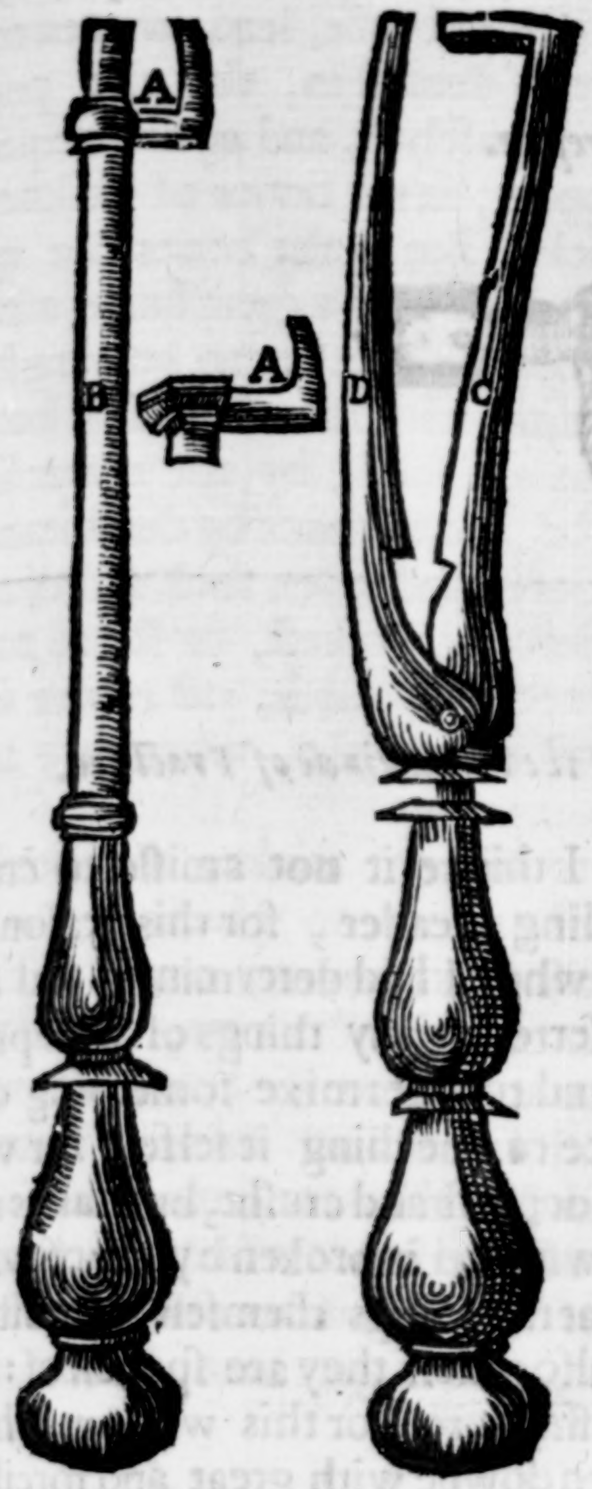


But if the bone ſhall be too ſtrong, thicke, and denſe, ſo that this Inſtrument will not ſerve to plucke it forth; then you muſt perforate the ſcull, in the very center of the depreſſion; and with this threefold Inſtrument, or Levatory put into the hole, lift up and reſtore the bone to its naturall ſite; for this ſame Inſtrument is of ſtrength ſufficient for that purpoſe. It is made with three feete, that ſo it may be applyed to any part of the head which is round; but divers heads may be fitted to the end thereof according as the buſineſſe ſhall require, as the figure here placed doth ſhew.

A three footed Levatorie.



A deliniation of other Levatories.



A A. *Shewes the point or tongue of the Levatory, which muſt be ſomewhat dull, that ſo it may bee the more gently and eaſily put betweene the* Dura Mater *and the ſcull, and this part thereof may be lifted up ſo much by the head or handle taken in your hand, as the neceſſity of the preſent operation ſhall require.*

B. *Intimates the body of the Levatory, which muſt bee foure ſquare, leſt the point or tongue put thereon ſhould not ſtand faſt, but the end of this Body muſt reſt upon the ſound bone, as on a ſure foundation.*

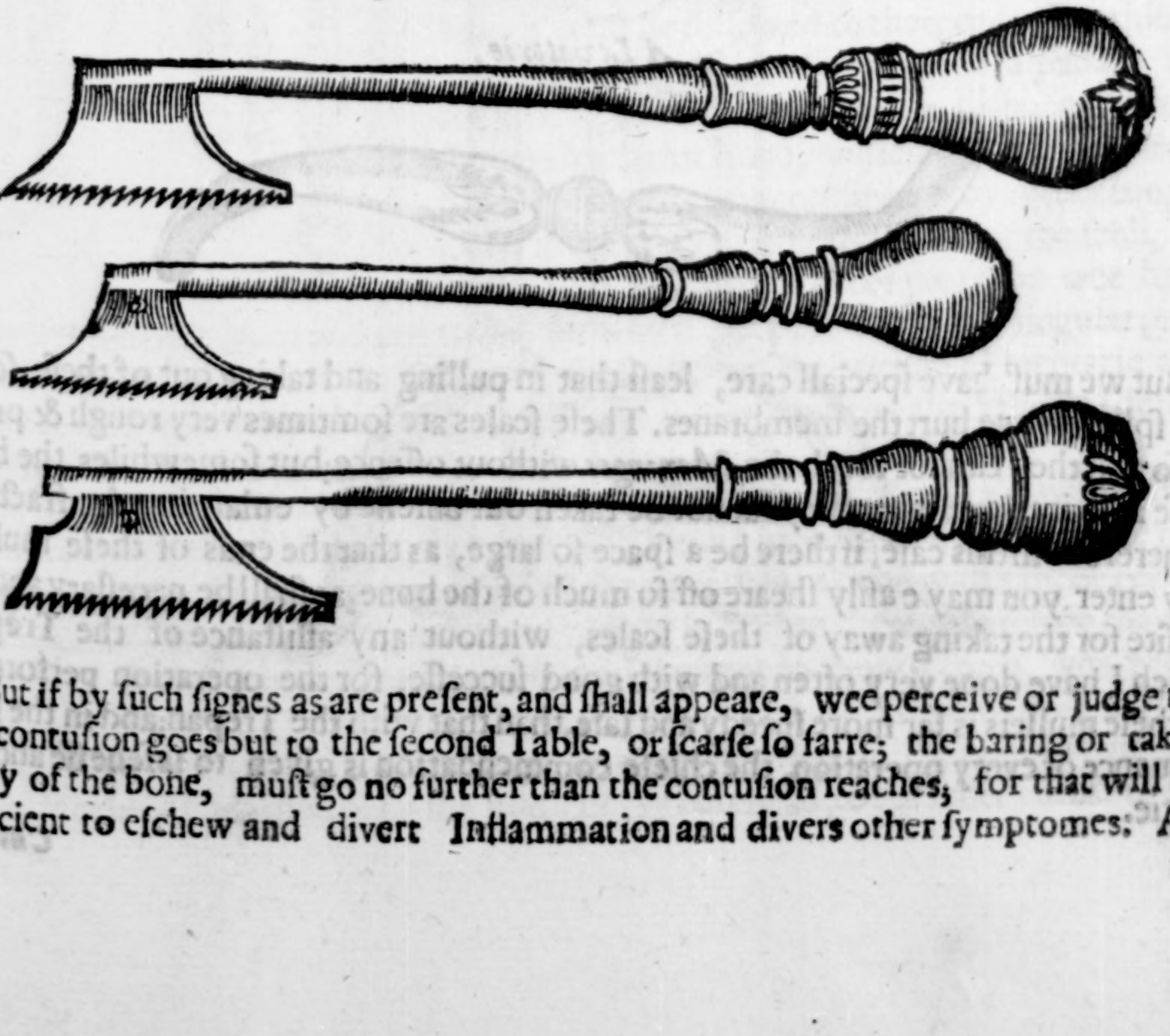
The uſe thereof is, thus; put the point or tongue under the broken or depreſſed bone, then lift the handle up with your hand, that ſo the depreſſed bone may bee elevated.

C. *Shewes the firſt Arme of the other Levatory, whoſe crooked end muſt bee gently put under the depreſſed bone.*

D. *Shewes the other Arme, which muſt reſt on the ſound bone, that by the firme ſtanding thereof, it may liſe up the depreſſed bone.*

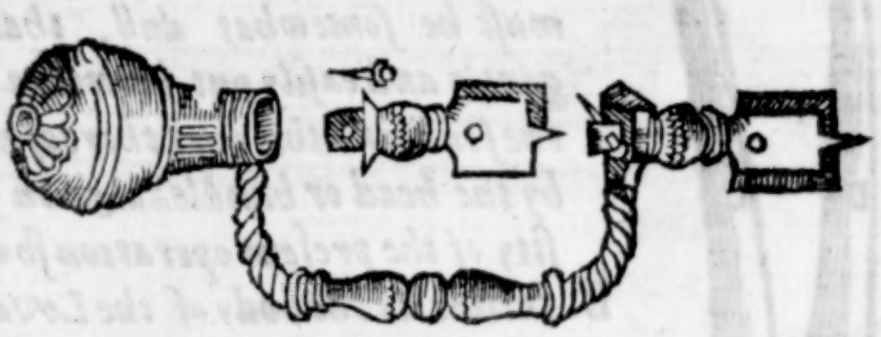
But if at any time it comes to paſſe, that the bone is not totally broken or depreſt, but onely on one ſide; it will be fit, ſo to lift it up, as alſo to make a vent for the iſſuing out of the filth, to devide the ſcull with little ſawes like theſe, which ye ſee here expreſſed, for thus ſo much of the bone, as ſhall be thought needefull, may be cut off without compreſſion, neither will there be any danger of hurting the braine or membrane with the broken bone.

The Figures of Sawes fit to divide the ſcull.



But if by ſuch ſignes as are preſent, and ſhall appeare, wee perceive or judge that the contuſion goes but to the ſecond Table, or ſcarſe ſo farre; the baring or taking away of the bone, muſt go no further than the contuſion reaches, for that will bee ſufficient to eſchew and divert Inflammation and divers other ſymptomes. And this ſhall be done with a ſcaling or Deſquamatory Trepan (as they terme it) with which, you may eaſily take up as much of the bone, as you ſhall thinke expedient: And I have here given you the figure thereof.

A Deſquamatorie or Scaling Trepan.



CHAP. VI.

Of an Effracture, depreſſion of the bone, being the third kinde of Fracture.

What a contuſion is.

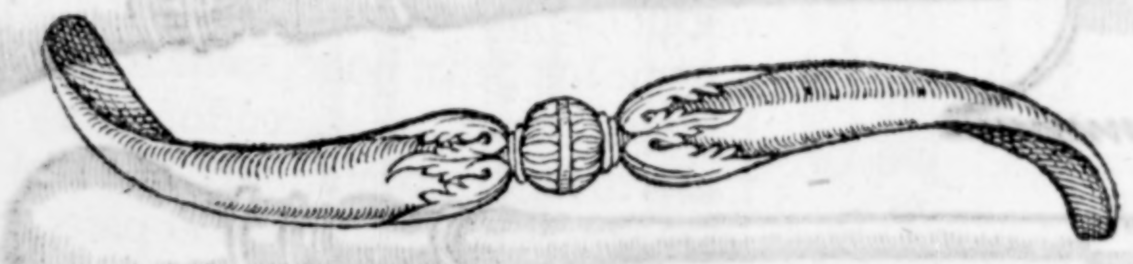
What an Effracture is.

The cauſes of Effractures.

The cure.

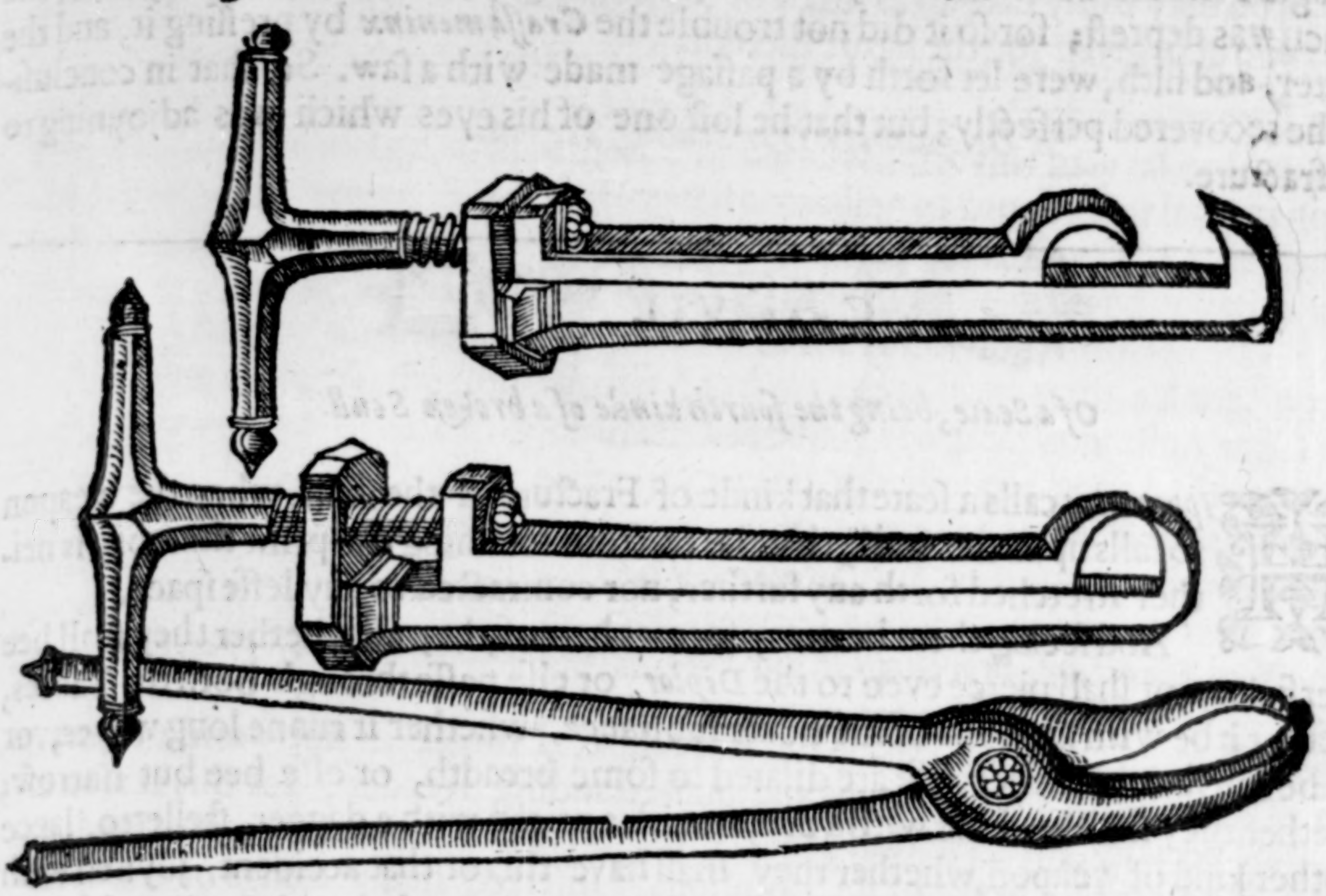
BEfore I come to ſpeake of an Effracture, I thinke it not amiſſe to crave pardon of the courteous and underſtanding Reader, for this reaſon eſpecially, that as in the former Chapter, when I had determined and appointed to ſpeake of a Contuſion, I inſerted many things of a Depreſſion; ſo alſo in this chapter of an Effracture, I intend to intermixe ſomething of a Contuſion; wee doe not this through any ignorance of the thing it ſelfe; for wee know that it is called a contuſion, when the bone is depreſt and cruſht, but falles not downe. But an Effracture is when the bone falls downe and is broken by a moſt violent blow. But it can ſcarſe come ſo to paſſe, but that the things themſelves muſt be confounded and mixt, both as they are done; and alſo when they are ſpoken of: ſo that you ſhall ſcarſe ſee a Contuſion without an Effracture, or this without that. Therefore the bones are often broken off and driven downe with great and forcible blowes, with clubbes whether round or ſquare, or by falling from a high place directly downe, more or leſſe according to the force of the blow, kinde of weapon, and condition of the part receiving the ſame: Wherefore you muſt bee provided with diverſity of remedies and Inſtruments to encounter therewith. Wherefore admit the bone is preſſed downe, and ſhivered into many peeces, now for that theſe ſplinters neede not be taken out with a Trepan: you may do the buſineſſe with Levatories made and neatly faſhioned for that purpoſe; ſuch as theſe, which are here expreſt.

A Levatorie.



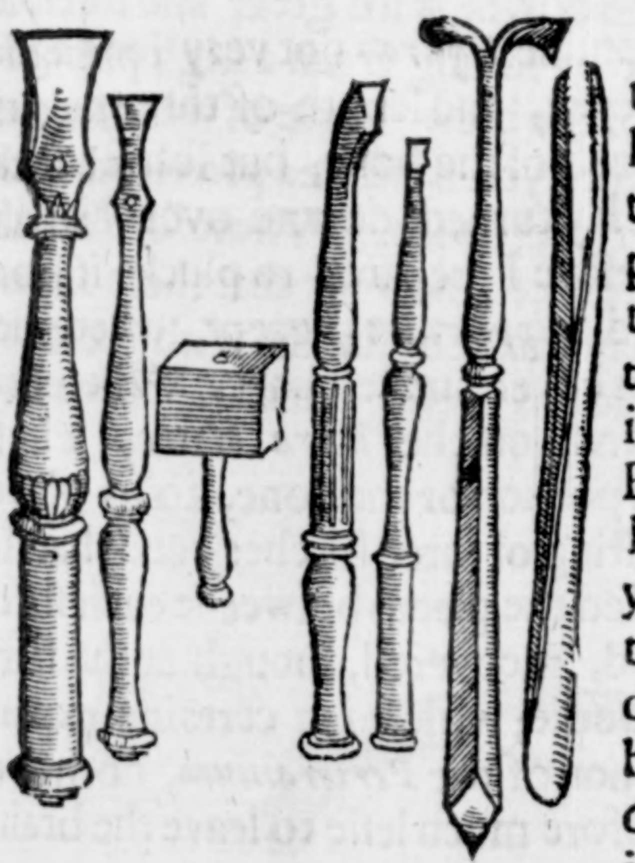
But we muſt have ſpeciall care, leaſt that in pulling and taking out of theſe ſcales and ſplinters, we hurt the membranes. Theſe ſcales are ſomtimes very rough & prickly, ſo that they cannot touch the *Meninges* without offence; but ſomewhiles the buſineſſe is ſo intricate, that they cannot be taken out unleſſe by enlarging the fracture. Wherefore in this caſe, if there be a ſpace ſo large, as that the ends of theſe mullets may enter, you may eaſily ſheare off ſo much of the bone, as ſhall be neceſſary and requiſite for the taking away of theſe ſcales, without any aſſiſtance of the Trepan, which I have done very often and with good ſucceſſe; for the operation performed by theſe mullets is far more ſpeedy and ſafe, than that with the Trepan; and in the performance of every operation, the chiefe commendation is given to ſafeneſſe and celeritie.

Cutting Mullets, commonly called, Roſtra Pſittaci, *or Parrots-beakes.*



Moreover I have thought good here to give you the figures of chiſſells, ſcrapers, and Pincers, together with a leaden mallet, becauſe ſuch Inſtruments are not onely very neceſſary to take forth the ſcales of bones which are broken, but alſo to plaine, and ſmooth thoſe which remaine whole.

The Figures of Scrapers, Pincers, a Leaden Mallet, &c.



But here you muſt note, that a Trepan nor Levatorie muſt never bee applyed to a bone quite broken, leſt the membranes lying under it bee hurt by the compreſſion thereof. Therefore you muſt apply them to a ſound bone, but as neare as you can to the fracture, ſo that you take away as little of the ſcull as is poſſible, leaſt the braine deſpoiled of its bonie cover, take ſome harme thereby. Neither Effractures, nor yet fiſſures if they bee of ſome length, muſt be followed to their ends, but thinke your ſelfe well, if you have made a paſſage for the iſſuing forth of the *Sanies* or filth, and have drawne forth that bone, which pricked the membranes. For nature is accuſtomed by generating a *Callus* to ſouder, or unite the bones of the ſcull, as it alſo doth theſe of the other parts; as wee have read it written by *Hippocrates* and *Galen*; for which purpoſe it hath by ſingular providence repleniſhed both the Tables of the ſcull, with a certaine alimentarie and bloody matter, that with this, as with marrow it might repaire the loſſe and defect of the bone.

Hip. lib. de Vuln. cap. Gal. lib. 6. meth. cap. ult.

The truth hereof was lately manifeſted in the ſervant of Maſter *Grolo*, who had an Effracture on the coronall bone, by a greevous blow, given him with the foote of a Mule; which when I underſtood, I devided the muſculous skinne with a three cornered ſection in that place, with an intent to apply a Trepan there; wherefore the day following, the bone being bored, and when I thought to draw it forth, yea verily endevoured to plucke it forth, being already divided with the Trepan; I perceived a fearefull production of an Effracture; by the moveableneſſe of the bone ſhaking under my hand; for it reached from the midſt of the forehead, to the leſſer corner of the eye.

A Hiſtory.

eye. Wherefore omitting both my determination and endeavour to pull it forth, I thought I ſhould doe ſufficiently for the patient: if I ſhould only raiſe up the bone which was depreſt; for ſo it did not trouble the *Craſſa meninx* by preſſing it, and the matter, and filth, were let forth by a paſſage made with a ſaw. So that in concluſion, he recovered perfectly, but that he loſt one of his eyes which was adjoyning to the fracture.

CHAP. VII.

Of a Seate, being the fourth kinde of a broken Scull.

What a ſeate is.

H*ippocrates* calls a ſeate that kinde of Fracture of the ſcull, when the weapon ſo falls upon the ſcull, that the fracture reteining the print thereof, is neither ſtretched forth any further, nor contracted to any leſſe ſpace.

The cure.

And ſeeing there be many formes hereof, they all whether they ſhall bee ſuperficiary, or ſhall pierce even to the *Diploe*, or elſe paſſe through both the Tables, whether it be with any loſſe of the bonie ſubſtance, whether it runne long wayes, or elſe be but ſhort; or otherwiſe are dilated to ſome breadth, or elſe bee but narrow; whether they ſhall be done with a cut, or with a pricke with a dagger, ſtelletto, lance or other kind of weapon, whether they ſhall have this or that accident joyned with them, I ſay all of them, how many and various ſoever they be, ought and muſt be cured by ſome of the formerly deſcribed Inſtuments and meanes. Yet this muſt be noted, which as yet wee have not remembred, that if it happen by a violent ſtroake, and great wound, that a portion of the bone is wholy ſo cut off, that it is cleane ſevered from the reſt of the ſcull, and hang only by the *Pericranium* and muſculous skinne; yet you muſt not plucke it from the *Pericranium*, and caſt it away as unprofitable, but reſtore it to its proper ſeate and place, ſo by the force of nature, to be glewed by a *Callus*, as *Celſus* hath obſerved.

Lib.8.cap.4.

A Hiſtory.

I have tryed the truth of this experiment, in captaine *Hydron* not very long agoe. He had the middle part of the *Os Coronale*, of the bredth, and length of three fingers, ſo cut with a ſharpe ſword, that it ſtucke not to the reſt of the bone; but ſcarſe adhearing to the *Pericranium* and muſculous skinne; but lay turned downe over his face, ſo that the *Dura Mater* was plainely ſeene; wherefore I prepared to plucke it from the skinne, and caſt it away, but that I remembred *Hippocrates* precept, where hee bids, that the Braine ſhould not be robbed of its cover and left bare. Wherefore firſt of all I wiped away the blood which was fallen upon the *Dura Mater*, whoſe motion you might plainely ſee, then I reſtored the portion of the bone, to its place, and faſtned it on the upper ſide with a ſuture conſiſting of three ſtitches; and that the reſidue of the matter might have paſſge forth, I filled the places betweene each ſtitch with linte; by this meanes, he by the mercy of God, recovered, though at the ſame time he received many other large wounds in his bodie; which is a certaine experiment, that we muſt caſt away no part of the ſcull, nor of the *Pericranium*, no not of the muſculous skinne, unleſſe neceſſity urge; therefore much leſſe to leave the braine naked and deſpoiled of its coverings.

CHAP. VIII.

Of a Reſonitus, *or Counter-fiſſure, being the fifth kinde of Fracture.*

What a *Reſonitus* is.

SOmetimes the fracture is made in the part oppoſite to that which received the blow; as if the right ſide be ſtrucke, the left is cloven; this kinde of fracture is very dangerous, becauſe wee cannot finde it out by any certaine ſigne, as it is written by *Hippocrates Lib. de vuln. Capitis*. Wherefore if at any time the patient dye of ſuch a fracture, the Chirurgion muſt be pardoned.

And although *Paulus Ægineta* laugh at this kinde of fracture and thinkes that it cannot happen to a mans head, as that which is hard and full, as it happens in empty glaſſe bottles, yet I have ſometimes ſeene and obſerved it.

Lib.6. cap.90.

Neither is their reaſon of any validity, who thinke nature therefore to have framed the head of many bones knit together by ſutures, leſt the fracture of the one ſide, ſhould be ſtretched to the other. For peradventure this may take place, in ſuch as have expreſſe ſutures, ſeated and framed according to nature. But it takes no place in ſuch as either want them, or have them not ſeated according to nature, or have them very cloſe and ſo defaced that it may ſeeme one bone growne together of many; This ſhall be made manifeſt by recitall of the following Hiſtorie.

In whom this fracture may take place in diverſe bones of the ſcull.

A Hiſtory.

A ſervant of *Maſſus* the Poſte-maſter had a greevous blow with a ſtone, upon the right *Bregma*, which made but a ſmall wound, yet a great contuſion and Tumor: Wherefore that it might more plainely appeare, whether the bone had received any harme, and alſo that the congealed blood might be preſſed forth, the wound was dilated, the skinne being opened by *Theodore Hereus* the Chirurgion, who as hee was a skillfull workeman and an honeſt man, omitted nothing which Art might doe for his cure. When he had divided the skinne, the bone was found whole, although it was much to bee feared, that it was broken, becauſe he fell preſently to the ground with the blow, vomited and ſhewed other ſignes of a fractured ſcull; ſo it happened that he dyed on the one & twentieth day of his ſicknes. But I being called to learne, & ſearch how he came by his death, deviding the ſcul with a ſaw, found in the part oppoſite to the blow, a great quantity of *Sanies* or bloody matter, and an Abſceſſe in the *Craſſa meninx*, and alſo in the ſubſtance of the very braine, but no ſutures, but the two ſcaly ones. Therefore that is certaine which is now confirmed by the authority of *Hippocrates*; as alſo by reaſon and experience, that a blow may bee received on the one ſide, and the bone may be fractured on the oppoſite, eſpecially in ſuch as have either no ſutures, or elſe ſo firmely united and cloſed, that they are ſcarſe apparent.

The *Reſonitus* may be in the ſame bone of the ſcull.

Neither is it abſurde, that the part, oppoſite to that which received the ſtroake, of the ſame bone and not of diverſe bones may be cloven, and in thoſe men who have their ſculls well made, and naturally diſtinguiſhed and compoſed with ſutures; and this both was and is, the true meaning of *Hippocrates*. That this may bee the better underſtood, we muſt note that the oppoſite part of the ſame bone may be underſtood two manner of wayes. Firſt, when the fracture is in the ſame ſurface of the ſmitten bone, as if that part of one of the bones of the *Bregma* which is next to the Lambdall ſuture be ſmitten, and the other part next to the Coronall ſuture be cloven. Secondly, when as not the ſame ſuperficies and table which receives the blow, but that which lyes under it is cleft, which kind of fracture I obſerved, in a certaine Gentleman a Horſman of Captaine *Stempans* troope; He in defending the breach of the wall of the Caſtle of *Hiſdin* was ſtrucke with a Musket bullet upon the *Bregma*, but had his helmet on his head; the bullet dented in the Helmet but did not breake it, no nor the muſculous skinne, nor ſcull, for as much a could be diſcerned, yet notwithſtanding hee died apoplecticke upon the ſixt day after.

A Hiſtory.

But I being very deſirous to know, what might be the true cauſe of his death, dividing his ſcull, obſerved that the ſecond table was broken, and caſt off ſcales and ſplinters, wherewith as with nedles the ſubſtance of the braine was continually pricked, the firſt and upper table being whole, for all this: I afterwards ſhewed the like example to *Capellanus* and *Caſtellanus* the King and Queenes chiefe Phiſitions in the expedition of *Roane*.

Why *Hippocrates* ſet downe no way to cure a *Reſonitus*.

The manner to know when the ſcull is fractured by a *Reſonitus*.

But *Hippocrates* preſcribes no method of curing this fifth kind of fracture, by reaſon he thinks it cannot be found out by any circumſtance, whence it happens that it is for the moſt part deadly. Yet muſt we endeavour to have ſome knowledg & conjecture of ſuch a fracture; if it ſhall at any time happen. Wherefore having firſt diligently ſhaved away the haire, we muſt apply an Emplaiſter of Pitch, Tarre, Waxe, Turpentine, the powder of *Iris*, or floure deluce rootes, and maſtich; now if any place of the head ſhall appeare more moyſt, ſoft and ſwollne, it is ſomewhat likely that the bone is cleft in that place, ſo that the patient, though thinking of no ſuch thing, is now & then forcſt to put his hand to that part of the ſcull. Confirmed with theſe and other ſignes formerly mentioned, let him call a counſell of learned Phyſitions; and foretell the danger to the Patients friends which are there preſent, that there may no occaſion of calumnie remaine, then let him boldely perforate the ſcull; for that is far better, than forſake the patient ready to yeelde to the greatneſſe of the hidden diſeaſe, and ſo conſequently to dye within a ſhort while after. There are foure ſorts, or conditions of fractures, by which the Chirurgion may be ſo deceived, that when the ſcull is broken indeed, yet he may thinke there is no fracture. The firſt is when the bone is ſo depreſſed, that it preſently riſes up into its true place, and native equability. The ſecond is when the fiſſure is onely capillary, The third is when the bone is ſhaken on the inſide, the utter ſurface nevertheleſſe remaining whole, foraſmuch as can be dediſcerned. The fourth is, when the bone is ſtricken on the one ſide and cleft on the other.

CHAP. IX.

Of the moving, or Concuſſion, of the Braine.

Gal.lib. 2 de comp.medic. cap.6.& Com. ad Aph.58, 8 ſect.7.

BEſides the mentioned kindes of fractures by which the braine alſo ſuffers; there is another kinde of affect beſides nature, which alſo aſſailes it by the violent incurſion of a cauſe, in like manner, externall; they call it the Commotion or ſhaking of the braine, whence Symptoms like thoſe of a broken ſcull enſue. Falling from aloft upon a ſolide and hard body, dull and heavie blowes, as with ſtones, clubbes, ſtaves, the report of a peece of Ordinance, or cracke of Thunder, and alſo a blow with ones hand.

Lib.5.Epidem.

Thus as *Hippocrates* tells, that beautifull damoſell the daughter of *Nerius*, when ſhe was twenty yeeres old, was ſmitten by a woman, a friend of hers, playing with her, with her flat hand upon the fore part of the head, and then ſhe was taken with a giddines, and lay without breathing, & when ſhe came home, ſhe fell preſently into a great Feaver, her head aked, and her face grew red. The ſeaventh day after there came forth ſome two or three Ounces of ſtincking and bloody matter about her right eare, and ſhee ſeemed ſome what better and to be at ſomewhat more eaſe. The feaver encreaſed againe, and ſhe fell into a heavie ſleepineſſe, and loſt her ſpeech, and the right ſide of her face, was drawne up, and ſhe breathed with difficulty, ſhe had alſo a convulſion and trembling; both her tongue failed her, and her eyes grew dull, on the ninth day ſhe dyed. But you muſt note, that though the head be armed with a helmet, yet by the violence of a blow, the Veines, and Arteries may be broken, not onely theſe which paſſe through the ſutures, but alſo theſe which are diſperſed betweene the two tables in the Diploe, both that they might binde the *Craſſa Meninx* to the ſcull, that ſo the braine might move more freely, as alſo that they might carry the alimentary juice to the braine wanting marrow, that is, blood to nouriſh it, as we have formerly ſhewed in our Anatomie.

The veſſels of the braine broken by the commotion thereof.

Signes.

Celſus.

But from hence proceeds the effluxe of blood running betweene the ſcull, and membraines, or elſe betweene the membraines and braine; the blood congealing there, cauſeth vehement paine, and the eyes become blinde, vomitting is cauſed, the mouth of the ſtomacke ſuffering together with the braine; by reaſon of the Nerves of the ſixt conjugation, which runne from the braine thither, and from thence are ſpread over all the capacitie of the ventricle; whence becomming a partaker of the offence it contracts it ſelfe, and is preſently as it were overturned; whence firſt, theſe things that are conteined therein are expelled, and then ſuch as may flow, or come thither from the neighbouring and communne parts, as the Liver and Gall; from all which choler, by reaſon of its naturall levity and velocity, is firſt expelled and that in greateſt plenty; and this is the true reaſon of that vomiting, which is cauſed and uſually followes upon fractures of the ſcull and concuſſions of the Braine.

The cauſe of vomiting when the head is wounded.

Within a ſhort while after inflammation ſeizes upon the membranes and braine it ſelfe, which is cauſed by corrupt and putrid blood proceeding from the veſſels broken by by the violence of the blow, and ſo ſpread over the ſubſtance of the braine. Such inflammation communicated to the heart, and whole body by the continuation of the parts, cauſes a feaver. But a feaver, by altering the braine cauſes Doting; to which if ſtupidity ſucceed; the Patient is in very ill caſe, according to that of *Hippocrates*; Stupidity, and doting, are ill in a wound, or blow upon the head. But if to theſe evills, a ſphacell, and corruption of the braine enſue, together with a great difficulty of breathing, by reaſon of the diſturbance of the Animall facultie, which from the braine imparts the power of moving to the muſcles of the Cheſt, the inſtruments of reſpiration, then death muſt neceſſarily follow.

Aphor. 14, ſect. 7

A Hiſtory.

A great part of theſe accidents appeared in King *Henry* of happy memory, a little before he dyed. He having ſet in order the affaires of France, and entred into amitie with the neighbouring Princes, deſirous to honour the marriages of his daughter, and ſiſter, with the famous and noble exerciſe of Tilting, and hee himſelfe running in the Tilt-yard, with a blunt lance received ſo great a ſtroake upon his breſt, that with the violence of the blow, the viſour of his helmet flew up, and the trunchion of the broken Lance, hit him above the left eye-brow, and the muſculous skinne of the fore-head was torne even to the leſſer corner of the left eye, many ſplinters of the ſame trunchion being ſtrucke into the ſubſtance of the fore mentioned eye, the bones being not touched or broken; but the braine was ſo moved and ſhaken, that he dyed the eleaventh day after the hurt. His ſcull being opened after his death, there was a great deale of blood found betweene the *Dura*, and *Pia Mater*, poured forth in the part oppoſite to the blow, at the middle of the ſuture of the hinde part of the head; and there appeared ſignes by the native colour turned yellow, that the ſubſtance of the braine was corrupted, as much as one might cover with ones thumbe. Which things cauſed the death, of the moſt Chriſtian King, and not onely the wounding of the eye, as many have falſly thought. For wee have ſeene many others, who have not dyed of farre more greevous wounds in the eye.

What was the neceſſary cauſe of the death of King Henry the ſecond of France.

A Hiſtory.

The hiſtory of the Lord Saint *Iohns* is of late memory: he in the Tilt-yarde, made for that time before the Duke of *Guiſes* houſe, was wounded with a ſplinter of a broken Lance, of a fingers length and thickneſſe, through the viſour of his Helmet, it entring into the Orbe under the eye, and peircing ſome three fingers bredth deepe into the head; by my helpe and Gods favour hee recovered, *Valeranus* and *Duretus* the Kings Phyſitions and *Iames* the Kings Chirurgion aſſiſting me.

A Hiſtory.

What ſhall I ſay of that great and very memorable wound of *Francis* of *Loraine* the Duke of *Guiſe*? He in the ſight of the Citty of *Bologne* had his head ſo thruſt thorough with a Lance, that the point entring under his right eye by his noſe, came out at his necke betweene his eare and the *vertebra*, the head or Iron being broken and left in by the violence of the ſtroke, which ſtuck there ſo firmely, that it could not be drawn or plucked forth, without a paire of Smiths pincers. But although the ſtrength & violence of the blow was ſo great, that it could not be without a fracture of the bones, a tearing and breaking of the Nerves, Veines, Arteries and other parts; yet the generous Prince by the favour of God recovered.

By which you may learne, that many die of ſmall wounds; and other recover of great, yea very large and deſperate ones. The cauſe of which events is chiefly and primarily to be attributed to God, the author and preſerver of mankinde; but ſecondarily to the variety and condition of temperaments. And thus much of the commotion or concuſſion of the braine; whereby it happens that although all the bone remaines perfectly whole, yet ſome veines broken within by the ſtroake, may caſt forth ſome bloud upon the membranes of the braine, which being there concreate may cauſe great paine, by reaſon whereof it blindes the eyes; if ſo be that the place can be found againſt which the paine is, and when the skinne is opened, the bone looke pale, it muſt preſently be cut out, as *Celſus* hath written. Now it remaines, that we tell you how to make your prognoſtickes, in all the forementioned fractures of the ſcull.

Why ſome die of ſmall wounds and others recover of great.

Chap. X.

Of Pregnoſtickes to be made, in fractures of the ſcull.

Hippoc. de vul. cap.

WEE muſt not neglect any wounds in the head, no not theſe which cut or bruiſe but onely the hairy ſcalpe; but certainely much leſſe, theſe which are accompanied by a fracture in the ſcull; for oft times all horride ſymptomes follow upon them, and conſequently death it ſelfe, eſpecially in bodies full of ill humors, or of an ill habite, ſuch as are theſe which are affected with the *Lues venerea*, leproſie, dropſie, Pthiſicke and conſumption; for in theſe, ſimple wounds are hardly or never cured; for union is the cure of wounds, but this is not performed, unleſſe by ſtrength of nature, and ſufficient ſtore of laudible blood: but thoſe which are ſicke of hecticke feavers and conſumptions, want ſtore of blood: and thoſe bodies which are repleate with ill humors, and of an ill habite have no affluxe or plenty of laudible blood: but all of them want the ſtrength of nature; the reaſon is almoſt the ſame in thoſe alſo which are lately recovered of ſome diſeaſe.

Whether the wounds of children, or old people are better to heale.

Thoſe wounds which are bruſed are more difficult to cure, than thoſe which are cut. When the ſcul is broken, than the continuity of the fleſh lying over it muſt neceſſarily be hurt & broken, unleſſe it be in a *Reſonitus*. The bones of children are more ſoft, thin and repleniſhed with a ſanguine humidity, than thoſe of old men, and therefore more ſubject to putrefaction; Wherefore the wounds which happen to the bones of children, though of themſelves, and their owne nature they may be more eaſily healed, (becauſe they are more ſoft, whereby it comes to paſſe, that they may bee more eaſily agglutinated, neither is there fit matter wanting for their agglutination by reaſon of the plenty of blood laudible both in conſiſtence and quality) than in old men, whoſe bones are dryer and harder, and ſo reſiſt union, which comes by mixture, and their bloud is ſerous, and conſequently a more unfit bond of unitie and agglutination; yet oft times through occaſion of the ſymptomes which follow upon them, that is putrefaction and corruption, which ſooner ariſe in a hot and moyſt body, and are more ſpeedily encreaſed in a ſoft and tender, they uſually are more ſuſpected and difficult to heale.

The Patient lives longer of a deadly fracture in the ſcull, in Winter than in Summer, for that the native heat is more vigorous in that time than in this; beſides, alſo the humors putriſie ſooner in Summer, becauſe unnaturall heat is then eaſily enflamed and more predominant, as many have obſerved out of *Hippocrates*.

Aph. 15. ſect. 1.

The Wounds of the braine and of the *Meninges* or membranes thereof are moſt commonly deadly, becauſe the action of the muſcles of the cheſt, and others ſerving for reſpiration, is divers times diſturbed & intercepted, whence death inſues. If a ſwelling happening upon a wound of the head preſently vaniſh away, it is an ill ſigne, unleſſe there be ſome good reaſon therefore, as blood-letting, purging, or the uſe of reſolving locall medicines, as may be gathered by *Hippocrates* in his Aphoriſmes. If a feaver enſue preſently after the beginning of a wound of the head, that is, upon the fourth or ſeaventh day, which uſually happens, you muſt judge it to bee occaſioned by the generating of *Pus* or Matter, as it is recited by *Hippocrates*. Neither is ſuch a feaver ſo much to be feared, as that which happens after the ſeaventh day, in which time it ought to be determinated; but if it happen upon the tenth or foureteenth day with cold or ſhaking, it is dangerous, becauſe it makes us conjecture that there is putrefaction in the braine, the *Meninges*, or ſcull, through which occaſion it may ariſe, chiefely if other ſignes ſhall alſo concurre, which may ſhew any putrifaction, as if the wound ſhall be pallide and of a faint yellowiſh colour, as fleſh lookes after it is waſhed.

Aphor. 65, ſect. 5

Aph. 47, ſect. 2.

Wounds which are dry, rough, livide and black are evill,

For, as it is in *Hippocrates Aphoriſ. 2. ſect. 7.* It is an ill ſigne if the fleſh looke livide, when the bone is affected; for that colour portends the extinction of the heate, through which occaſion, the lively, or indifferently red colour of the part, faints and dyes, and the fleſh thereabouts is diſſolved into a viſcide *Pus* or filth.

Commonly another worſe affect followes hereon, wherein the wound becomming withered and dry, lookes like ſalted fleſh, ſends forth no matter, is livide and blacke, whence you may conjecture, that the bone is corrupted, eſpecially if it become rough, whereas it was formerly ſmooth and plaine; for it is made rough when *Caries* or corruption invades it; but as the *Caries* encreaſes, it becomes livide and blacke, ſanious matter withall ſweating out of the *Diploe*, as I have obſerved in many: all which are ſignes that the native heat is decayed, and therefore death at hand; but if ſuch a feaver be occaſioned from an *Eryſipelas* which is either preſent or at hand, it is uſually leſſe terrible. But you ſhall know by theſe ſignes, that the feaver is cauſed by an *Eryſipelas* & confluxe of cholericke matter; if it keepe the forme of a Tertian, if the fit take them with coldnes and end in a ſweat; if it be not terminated before the cholerike matter is either converted into *Pus* or elſe reſolved; if the lips of the wound be ſomwhat ſwollne, as alſo all the face; if the eyes be red and fiery; if the necke and chappes bee ſo ſtiffe, that he can ſcarſe bend the one, or open the other; if there be great exceſſe of biting and pricking paine, and heate, and that farre greater than in a *Phlegmon*. For ſuch an *Eryſipelous* diſpoſition generated of thinne and hot blood, chiefely aſſailes the face, and that for two cauſes.

The ſignes of a feaver cauſed by an *Eryſipelas*.

The firſt is, by reaſon of the naturall levity of the cholericke humor; the other becauſe of the rarity of the ſkinne of theſe parts.

Why an *Eryſipelas* chiefely aſſailes the face.

The cure of ſuch an affect muſt be performed by two meanes, that is, evacuation, and cooling with humectation. If choler alone cauſe this tumor, we muſt eaſily bee induced to let blood, but we muſt purge him with medicines evacuating choler. If it be an *Eriſipelas phlegmonodes*, you muſt draw blood from the Cephalicke veine of that ſide, which is moſt affected, alwayes uſing adviſe of a phiſition. Having uſed theſe generall meanes, you muſt apply refrigerating and humecting things, ſuch as are the juice of Night-ſhade, Houſleeke, Purſlaine, Lettuce, Navell wort, Water Lentill, or Ducks-meate, Gourdes; a liniment made of two handfulls of Sorrel boiled in faire water, then beaten and drawne through a ſearſe, with ointment of Roſes, or ſome *vnguent. Populeon* added thereto, will bee very commodious. Such and the like remedies muſt be often and ſo long renued untill the unnaturall heat be extinguiſhed. But we muſt be carefull to abſtaine from all unctuous and oyly thing, becauſe they may eaſily be enflamed, and ſo increaſe the diſeaſe. Next we muſt come to reſolving medicines; but it is good when any thing comes from within, to without; but on the contrary it is ill, when it returnes from without inwards, as experience and the Authority of *Hippocrates* teſtifie: If when the bone ſhall become purulent, puſtles ſhall breake out on the tongue, by the dropping downe of the acride filth or matter by the holes of the pallate upon the tongue, which lyes under. Now when this ſymptome appeares, few eſcape. Alſo it is deadly when one becomes dumbe and ſtupid, that is, Apolecticke by a ſtroake or wound on the head; for it is a ſigne that not onely the bone, but alſo the braine it ſelfe is hurt. But oft times the hurt of the Braine proceedes ſo farre, that from corruption it turnes to a Sphacell, in which caſe, they all have not onely puſtles on their tongues, but ſome of them dye ſtupide and mute, otherſome with a convulſion of the oppoſite part; neither as yet have I obſerved any which have dyed with either of theſe ſymptomes, by reaſon of a wound in the head, who have not had the ſubſtance of their braine tainted with a Sphacell, as it hath appeared when their ſculls haue beene opened after their death.

The cure of an *Eryſipelas* on the face.

Why oyly things muſt not be uſed in an *Eryſipelas* of the face.

Aph. 25. ſect. 6

Deadly ſignes in wounds of the head.

CHAP. XI.

Why, when the braine is hurt by a wound of the head, there may follow a Convulſion of the oppoſite part.

MAny have to this day enquired, but as yet as farre as I know it hath not bin ſufficiently explained, why a convulſion in wounds of the head ſeazes on the part oppoſite to the blow. Therefore I have thought good to end that controverſie in this place. My reaſon is this, that kinde of Symptome happens in the ſound part by reaſon of emptineſſe and dryneſſe

A convulſion is cauſed by dryneſſe.

A twofold cauſe of conſvulſificke dryneſſe.

dryneſſe; but there is a twofold cauſe, and that wholy in the wounded part, of this emptineſſe and dryneſſe of the ſound or oppoſite part; to wit, paine, and the concourſe of the ſpirits and humors thither by the occaſion of the wound, and by reaſon of the paines drawing and natures violently ſending helpe to the afflicted part.

The ſound part exhauſted by this meanes both of the ſpirits and humors, eaſily falls into a Convulſion.

Lib. 4. de uſu partium.

For thus *Galen* writes; God the creatour of nature, hath ſo knit together, the triple ſpirituous ſubſtance of our bodies, with that tye, and league of concord, by the productions of the paſſages; to wit of Nerves, Veines, and Arteries, that if one of theſe forſake any part, the reſt preſently neglect it, whereby it languiſheth, and by little, and little dyes, through defect of nouriſhment. But if any object that nature hath made the body double, for this purpoſe, that when one part is hurt, the other remaining ſafe and ſound, might ſuffice for life and neceſſity: but I ſay, this axiome hath no truth in the veſſells and paſſages of the body. For it hath not every where doubled the veſſels, for there is but one onely veine, appointed for the nouriſhment of the braine, and the membranes thereof, which is that they call the *Torcular*, by which when the left part is wounded, it may exhauſt the nouriſhment of the right and ſound part, and though that occaſion cauſe it to have a convulſion, by too much dryneſſe; Verily it is true, that when in the oppoſite parts, the muſcles of one kinde are equall in magnitude, ſtrength, and number, the reſolution of one part, makes the convulſion of the other by accident; but it is not ſo in the braine.

For the two parts of the braine, the right and left, each by its ſelfe performes that which belongs thereto, without the conſent, conſpiration, or commerce of the oppoſite part; for otherwiſe it ſhould follow, that the Palſie properly ſo called, that is of halfe the body, which happens by reſolution, cauſed either by mollification or obſtruction reſiding in either part of the braine, ſhould inferre together with it a Convulſion of the oppoſite part. Which notwithſtanding dayly experience convinces as falſe. Wherefore wee muſt certainely thinke, that in wounds of the head wherein the braine is hurt, that inanition and want of nouriſhment are the cauſes, that the ſound and oppoſite part ſuffers a convulſion.

Opinion of *Champhius.*

Francis Daleſchampius in his French Chirurgiry renders another reaſon of this queſtion; That, (ſaith he) the truth of this propoſition may ſtand firme and ratified, we muſt ſuppoſe, that the convulſion of the oppoſite part mentioned by *Hippocrates*, doth then onely happen, when by reaſon of the greatneſſe of the inflammation in the hurt part of the braine, which hath already inferred corruption; and a Gangræne to the braine and membranes thereof, and within a ſhort time is ready to cauſe a ſphacell in the ſcull, ſo that the diſeaſe muſt be terminated by death; for in this defined ſtate of the diſeaſe, and theſe conditions, the ſenſe and motion muſt neceſſarily periſh in the affected part, as we ſee it happens in other Gangrænes, through the extinction of the native heate. Beſides, the paſſages of the animall ſpirit muſt neceſſarily bee ſo obſtructed by the greatneſſe of ſuch an inflammation or phlegmon, that it cannot flow from thence to the parts of the ſame ſide lying there under, and to the neighbouring parts of the braine; and if it ſhould flow thither, it will be unprofitable to carry the ſtrength and facultie of ſenſe and motion, as that which is infected and changed by admixture of putred and Gangrænous vapours. Whereby it cometh to paſſe, that the wounded part deſtitute of ſenſe, is not ſtirred up to expell that which would be troubleſome to it, if it had ſenſe; wherefore neither are the Nerves thence ariſing ſeaſed upon, or contracted by a Convulſion.

It furthermore comes to paſſe, that becauſe theſe ſame nerves are deprived of the preſence and comfort of the animall ſpirit, and in like manner the parts of the ſame ſide, drawing from thence their ſenſe and motion are poſſeſſed with a palſie; for a palſie is cauſed either by the cutting or obſtruction of a Nerve, or the madefaction, or mollification thereof by a thinne and watry humor, or ſo affected by ſome vehement diſtemper, that it cannot receive the Animall ſpirit.

But for the oppoſite part and the convulſion thereof, it is knowne and granted by all, that a convulſion is cauſed either by repletion which ſhortens the Nerves by diſtending them into bredth, or by inanition, when as the native and primitive heate of the Nerves being waſted, their proper ſubſtance becommiug dry is wrinckled up and contracted; or elſe it proceedes from the vellication, and acrimonie of ſome vapour, or ſanious and biting humor, or from vehemencie of paine. So wee have knowne the falling ſickneſſe cauſed by a venenate exhalation carried from the foote to the braine. Alſo wee know that a convulſion, is cauſed in the puncture of the Nerves, when as any acride and ſanious humor is ſhut up therein, the orifice thereof being cloſed; but in wounds of the Nerves when any Nerve is halfe cut, there happens a convulſion by the bitterneſſe of the paine.

But verily in the oppoſite part, there are manifeſtly two of theſe cauſes of a convulſion; that is to ſay, a putride and carionlike vapour, exhaling from the hurt, and Gangrænate part of the braine; and alſo a virulent acride and biting *Sanies*, or filth, ſweating into the oppoſite ſound part, from the affected and Gangrænous; the malignitie of which *Sanies*, *Hippocrates* deſirous to decipher, in reckoning up the deadly ſignes of a wounded head, hath expreſſed it by the word *Ichor*; and in his booke of fractures he hath called this humor *Dacryodes et non Pyon.* [*that is, weeping and not digeſted.*] Therefore it is no mervaile if the oppoſite and ſound part endewed with exquiſite and perfect ſenſe, and offended by the flowing thereto of both the vaporours and ſanious matter, uſing its own force, contend and labour as much as it can, for the expulſion of that which is trouble ſome thereto. This labouring or concuſſion is followed (as we ſee in the falling ſickneſſe) by a convulſion, as that which is undertaken in vaine, death being now at hand; and nature over-ruled by the diſeaſe. Thus (ſaith *Dalechampius*) muſt we in my judgement determine of that propoſition of *Hippocrates* and *Avicen.*

But he addes further, in wounds of the head, which are not deadly, practitioners obſerve that ſometimes the hurt part is taken with the palſie, and the ſound with a convulſion; otherwhiles on the contrary, the wounded part is ſeazed by a Convulſion and the ſound by a Palſie; otherwhiles both of them by a convulſion or Palſie; and ſomewhiles the one of them by a convulſion or Palſie, the other being free from both affects; the cauſes of all which belong not to this place to explaine. Thus much *Dalechampius.*

Chap. XII.

A Concluſion of the deadly ſignes in the Wounds of the head.

The ſignes of a deadly wound from the depraved faculties of the minde.

Now that we may returne to our former diſcourſe; you may certainely foretell the patient will dye; when his reaſon and judgement being perverted, hee ſhall talke idly, when his memory failes him; when he cannot governe his tongue, when his ſight growes darke and dimme, his eares deafe, when he would caſt himſelfe headlong from his bed, or elſe lyes therein without any motion; when he hath a continuall feaver with a *delirium*, when the tongue breakes out in puſtles, when it is chopt, and become blacke, by reaſon of too much dryneſſe; when the wound growes dry, and caſts forth little or no matter, when as the colour of the wound which was formerly freſh, is now become like ſalted fleſh yellow and pale; when the Vrine, and other excrements are ſuppreſt; when the Palſie, convulſion, apoplexie, and laſtly often ſowning, with a ſmall and unequall pulſe, invade him. All ſuch ſignes ſometimes appeare preſently after the wound, otherwhiles ſome few dayes after; therefore when as the braine is hurt and wounded by the violence of the inciſion, or fiſſure, of the contuſion, compreſſion, puncture, concuſſion or any other fracture, the forementioned ſignes appeare preſently in the firſt dayes; but when they doe not appeare till many dayes after the blow, you may know that they riſe and appeare, by reaſon of an inflammation and phlegmon in the braine, occaſioned by the putrefaction of the blood poured forth upon it.

From habits of the body.

From the time that ſuch ſignes appeare.

Celſus lib.8. ca.4.

But we muſt obſerve this by the way, which alſo belongs to the prognoſtickes, that fleſh is eaſily regenerated, and reſtored in all parts of the head, except in that part of the forehead, which is a little above that which lyes betweene the eye-browes, ſo that it will be ulcerated ever after, and muſt be covered with a plaiſter. I beleeve that, in that place there is an internall cavity in the bone, full of ayre which goes to the ſive-like bones of the noſe, by which the growth of fleſh may be hindered; or elſe that the bone is very denſe or compact in that place, ſo that there can ſcarſe ſufficient juice ſweat forth, which may ſuffiſe for the regeneration of fleſh; adde hereunto a great confluxe of excrements flowing to this ulcer, which ſhould otherwiſe bee evacuated by the eyes and noſe, which hinder by that meanes the dryneſſe of the ulcer, and conſequently the healing thereof.

Hence certainely it comes to paſſe, that if you deſire the patient thus affected to breathe, ſhutting his mouth and noſe, the ayre or breath will come forth of the ulcer with ſuch force, as it will eaſily blow forth a lighted candle of an indifferent bigneſſe held thereto. Which thing I proteſt, I obſerved in a certaine man, whom I was forced to trepan in that place, by reaſon the bone of the forehead was broken and depreſſed.

CHAP. XIII.

Of ſalutarie ſignes in wounds of the head.

BVt on the contrary theſe are ſalutary ſignes, when the patient hath no feaver, is in his right minde, is well at the application or taking of any thing, ſleepes well, hath his belly ſoluble, the wound lookes with a freſh and lively colour, caſts forth digeſted and laudible matter, the *Craſſa Meninx* hath its motion free and no way hindered.

When the patients are out of danger.

Yet we muſt note, which alſo is obſerved by the Ancients and confirmed by experience; that we muſt thinke none paſt danger, and free from all chance, untill the hundreth day be paſt. Wherefore the Phyſitian ought ſo long to have a care of his patient, that is, to conſider how he behaves and governes himſelfe in meate, drinke, ſleepe, venerie and other things.

The patient muſt beware of cold.

But let the Patient diligently avoyd and ſhunne cold, for many when they have beene cured of wounds of the head, by careleſſe taking cold have beene brought into danger of their lives. Alſo you muſt know that the *Callus* whereby the bones of the ſcull are knit together, requires almoſt the ſpace of fortie or fifty dayes to its perfect coagmentation and concretion. Though in very deed one cannot ſet downe a certaine number of dayes, by reaſon of the variety of bodies, or tempers. For it is ſooner finiſhed in young men, and more ſlowly in old; And thus much may ſerve for prognoſtickes. Now will we treat as breefely and perſpicuouſly as we can of the cure both in generall and particular, wherefore beginning with the generall we will firſt preſcribe a convenient diet by the moderate uſe of the ſixe things not naturall.

CHAP. XIIII.

Of the generall cure of a broken ſcull, and of the Symptomes uſually happening thereupon.

How the ayre ought to be.

THe firſt cure muſt bee, to keepe the patient in a temperate aire; and if ſo bee, that it bee not ſuch of it ſelfe and its owne proper nature, it muſt be corrected by Art. As in winter he muſt have a cleare fire made in his chamber, leſt the ſmoake cauſe ſneeſing and other accidents; and the windowes and doores muſt be kept ſhut to hinder the approach of the cold ayre and winde. All the time the wound is kept open to bee dreſt, ſome body ſtanding by ſhall hold a chafendiſh full of coales or a heated Iron barre over the wound, at ſuch a diſtance, that a moderate heate may paſſe thence to the wound; and the frigidity of the encompaſſing ayre may be corrected by the breathing of the diffuſed heate. For cold according to the opinion of *Hippocrates*, is an enemie to the Braine, Bones, Nerves, and ſpinall marrow; it is alſo hurtfull to ulcers, by ſuppreſſing their excrements, which ſuppreſt

Aphor. 18. ſect. 5.

doe not onely hinder ſuppuration, but alſo by corroſion makes them ſinuous. Therefore *Galen* rightly admoniſheth us, to keep cold from the braine, not only in the time of Trepaning, but alſo afterwards. For there can no greater, nor more certaine harme befall the fractured ſcull, than by admitting the aire, by ſuch as are unskilfull. For if the ayre ſhould be hotter than the braine, then it could not thence be refrigerated; but if the braine ſhould be layd open to the ayre, in the midſt of Summer, when it is at the hotteſt, yet would it be refrigerated, and unleſſe it were releeved with hot things, take harme: this is the opinion of *Galen*, whereby you may underſtand that many who have their ſculls broken, dye more through default of skill in the curing, than by the greatneſſe of the fracture.

Lib. 2, de uſu part. ca. 2.

The Aire though in ſummer is colder than the braine.

But (when the wound is bound up with the pledgets, clothes, and rowlers as is fit) if the ayre chance to be more hot, than the patient can well endure, let it be amended by ſprinkling, and ſtrawing the chamber with cold water, oxycrate, the branches of Willowes and Vine. Neither is it ſufficient to ſhunne the too cold ayre, unleſſe alſo you take heed of the over light, chieſely untill ſuch time as the moſt feared and maligne ſymptomes are paſt.

For a too great light diſſipates the ſpirits, encreaſes paine, ſtrengthens the feaver and ſymptomes. *Hippocrates* wholy forbids wine, therefore the patient in ſteed thereof muſt drinke, Barly water, faire water boyled and tempered with Julep of Roſes, ſyrupe of Violets, vinegar and the like: water wherein bread crummes have beene ſteeped, water and ſugar, with a little juyce of Lemons, or pomecitron added thereto, and ſuch like as the abilitye and taſte of the patient ſhall require. Let him continue ſuch drinkes, untill he be free from maligne ſymptomes, which uſually happen within fouretee ne dayes.

The diſcommodities of too much light.

What his drink muſt be.

His meat ſhall be pappe, ptiſan, ſhunning Almond milkes; (for Almonds are ſayd to fill the head with vapours and cauſe paine) ſtued damaske Prunes, Raiſons and Currance, ſeaſoned with ſugar, and a little cinamon (which hath a wonderful power to comfort the ſtomack, and revive and exhilarate the ſpirits) Chickens, Pidgeons, Veale, Kid, Leverets, birds of the fields, Pheaſons, blacke-birds, Turtles, Partridges, Thruſhes, Larkes and ſuch like meates of good digeſtion, boiled with lettuce, purſlaine, ſorrell, borage, bugloſſe, ſuccory, endive and the like, are thought very convenient in this caſe. If he deſire at any time to feed on theſe meates roaſted, he may, only dipping them in verjuice, in the acide juices of Oranges, Citrons, Lemons, or Pomegranets, ſometimes in one, and ſometimes in another, according to his taſte and ability. If any have a deſire to eate fiſh, he muſt make choyce of Troutes, Gudgions, Pikes and the like, which live in running and cleare waters, and not in muddy; hee ſhall eſchew all cold ſallets and pulſe, becauſe they flye up and trouble the head: it will be convenient after meate to uſe common drige powder; or Aniſeed, Fennellſeed or Coriander comfits, alſo conſerve of Roſes, or Marmilate of Quinces to ſhut up the orifice of the Ventricle, leſt the head ſhould bee offended with vapoures ariſing from thence.

Almonds encreaſe the paine of the head.

What fiſh he may eate.

Children muſt eate often, but ſparingly; for children cannot faſt ſo long as thoſe which are elder, becauſe their naturall heate is more ſtrong, wherefore they ſtand in neede of more nouriſhment; ſo alſo in winter all ſorts of people require more plentifull nouriſhment, for that then their ſtomackes are more hot than in Summer.

Aphor. 13. & 14 ſect. 1.

When the foureteenth day is paſt, if neither a feaver, nor any thing elſe forbid, hee may drinke wine moderately, and by little and little, encreaſe his dyet, but that reſpectively to each ones nature, ſtrength and cuſtome. He ſhall ſhunne, as much as in him lyes, ſleepe on the day time, unleſſe it happen that a *Phlegmon* ſeaze upon the braine or *Meninges*. For in this caſe it will bee expedient to ſleepe on the day time, eſpecially from morning till noone, for in this ſeaſon of the day, as alſo in the ſpring blood is predominant in the body, according to the opinion of *Hippocrates*. For it is ſo vulgarly knowne, that it need not be ſpoken, that the blood when wee are awake is carryed into the habite and ſurface of the body; but on the contrary by ſleepe it is called into the noble parts, the Heart and Liver. Wherefore if that the blood by the force of the Sunne caſting his beames upon the earth, at his riſing is carryed into the habite of the body, ſhould againe bee more and more diffuſed by the ſtrength

Aphor. 15, ſect. 2

Why ſleepe upon the day-time is good for the braine being enflamed.

Lib. 2. Epidem.

The diſcommodities enſuing immoderate Watching.

ſtrength and motion of watching, the inflammation in the braine and *Meninges* would be much encreaſed. Wherefore it will bee better, eſpecially then to ſtay by ſleepe the violence of the blood running into the habite of the body, when it ſhall ſeeme to rage and more violently to affect that way. Watching muſt in like manner be moderate; for too much depraves the temper of the braine and of the habit of the whole body; it cauſes crudities, paines and heavineſſe of the head, and makes the wounds dry and maligne.

Gal. Meth. 13.

Medicines procuring ſleepe.

The commodities of ſleepe.

But if the patient cannot ſleepe by reaſon of the vehemencie of the inflammation of the braine and *Meninges*, *Galen* wiſhes, to waſh, beſmeare and annoint the head, noſe, temples and eares with refrigerating and humecting things, for theſe ſtupifie, and make drowſie the Braine and membranes thereof, being more hot than they ought to be. Wherefore for this purpoſe let the temples bee anointed with *Vnguentum populeon*, or *Vnguentum Roſatum* with a little roſe vinegar, or oxycrate; Let a ſpunge moiſtened in the decoction of white or blacke poppie ſeed, of the rinds of the rootes of Mandrages, of the ſeedes of Henbane, lettuce, purſlaine, plantaine, night-ſhade and the like. He may alſo have a broath or barly creame, into which you may put an emulſion made of the ſeedes of white poppye, or let him have a potion made with ℥j. or ℥iß. of the ſyrupe of poppie, with ℥ij. of lettuce water; Let the patient uſe theſe things 4 houres after meate, to procure ſleepe. For ſleepe doth much helpe concoction, it repaires the effluxe of the triple ſubſtance cauſed by watching, aſwageth paine, refreſheth the weary, mitigates anger and ſorrow, reſtores the depraved reaſon, ſo that for theſe reſpects it is abſolutely neceſſary that the patient take his naturall reſt.

If the patient ſhall bee plethoricke, let the plenitude be leſſened by blood-letting, purging and a ſlender diet, according to the diſcretion of the Phiſition who ſhall overſee the cure.

But we muſt take heed of ſtrong purgations, in theſe kindes of wounds, eſpecially at the beginning, leſt the feaver, inflammation, paine, and other ſuch like ſymptomes be increaſed by ſtirring up the humors.

Lib. 4. *Meth.*

Phlebotomie according to *Galens* opinion, muſt not onely be made reſpectively to the plenty of blood, but alſo agreeable to the greatneſſe of the preſent diſeaſe, or that which is to come, to divert, and draw backe that humor which flowes downe, by a way contrary to that which is impact in the part; and which muſt be there evacuated, or drawne to the next. Wherefore for example, if the right ſide of the head be wounded, the Cephalicke veine of the right arme ſhall be opened, unleſſe a great *Plethora* or plenitude cauſe us to open the *Baſilica*, or Median, yet if neither of them can be fitly opened, the *Baſilica* may bee opened, although the body is not plethoricke.

Lib. de cur. per ſanguinis Miſſ.

The like courſe muſt be obſerved in wounds of the left ſide of the head; for that is farre better by reaſon of the ſtraightneſſe of the fibers, than to draw blood on the oppoſite ſide; in performance whereof you muſt have diligent care of the ſtrength of the patient, ſtill feeling his pulſe, unleſſe a Phyſition be preſent, to whoſe judgement you muſt then commit all that buſineſſe. For the pulſe is, in *Galens* opinion, the certaineſt ſhewer of the ſtrength. Wherefore we muſt conſider the changes and inequalities thereof, for as ſoone as we finde it to become leſſer and more ſlow, when the fore-head beginnes to ſweate a little, when he feeles a paine at his heart, when he is taken with a deſire to vomit, or goe to ſtoole, or with yawning, and when hee ſhall change his colour and his lips looke pale, then you muſt ſtop the blood as ſpeedily as you can; otherwiſe there will be danger leſt hee poure forth his life together with his blood. Then he muſt bee refreſhed with bread ſteeped in wine, and put into his mouth, and by rubbing his temples and noſethrilles with ſtrong vinegar, and by lying upon his backe.

But the part ſhall bee eaſed and freed from ſome portion of the impact and conjunct humor by gently ſcarifying the lippes of the wound, or applying of Leaches. But it ſhall bee diverted, by opening theſe veines which are nigheſt to the wounded part, as the *Vena Puppis*, or that in the middeſt of the forehead, or of the temples, or theſe which are under the tongue; beſides alſo cupping-glaſſes ſhal be

applyed

applied to the ſhoulders ſometimes, with ſcarification, ſometimes without; neither muſt ſtrong, and long frictions with courſe clothes, of all the whole body, the head excepted, be omitted during the whole time of the cure, for theſe will be available, though but for this, that is; to draw backe and diſſipate by inſenſible tranſpiration the vapours which otherwiſe would aſcend into the head, which matters certainly in a body that lyes ſtill and wants both the uſe and benefit of accuſtomed exerciſe, are much increaſed.

The uſe of Fractures.

A Hiſtory.

But it ſhall bee made manifeſt by this following and notable example, how powerfull blood-letting is, to leſſen and mitigate the inflammation of the Braine, or the membranes thereof in wounds of the head. I was lately called into the ſuburbs of Saint *German*, there to viſite a young man twenty eight yeeres old, who lodged there in the houſe of *Iohn Martiall*, at the ſigne of Saint *Michaell*. This young man, was one of the houſhold ſervants of Maſter *Doncador*, the ſteward of the Lady *Admirall* of *Brion*. He fell downe headlong upon the left *Bregma*, upon a marble pavement, whence he received a contuſed wound, without any fracture of the ſcull, and being he was of a ſanguine temperature, by occaſion of this wound, a feaver tooke him on the ſeaventh day with a continuall *delirium* and inflammation of phlegmonous tumor of the wounded *Pericranium*. This ſame tumor poſſeſſing his whole head and necke by continuation and ſympathy of the parts, was growne to ſuch a bigneſſe, that his viſage was ſo much altred, that his friends knew him not; neither could he ſpeake, heare, or ſwallow any thing but what was very liquide. Which I obſerving, although I knew, that the day paſt, which was the eight day of his diſeaſe, he had foure ſaucers of blood taken from him by *Germaine Agace* Barber-ſurgion of the ſame ſuburbs; yet conſidering the integrity and conſtancie of the ſtrength of the patient, I thought good to bleed him againe; wherefore I drew from him fourteene ſaucers at that one time; when I came to him the day after, and ſaw that neither the feaver, nor any of the fore mentioned ſymptomes were any whit remitted, or aſwaged, I forthwith tooke from him foure ſaucers more, which in all made two & twenty; the day following when I had obſerved, that the ſymptomes were no whit leſſened, I durſt not preſume by my owne onely advice, to let him the fourth time blood as I deſired. Wherefore I brought unto him, that moſt famous Phyſition Doctor *Violene*, who as ſoone as he felt his pulſe, knowing by the vehemencie thereof, the ſtrength of the Patient, and moreover conſidering the greatneſſe of the inflammation and tumor which offered its ſelfe to his ſight, hee bid mee preſently take out my Lancet and open a veine. But I lingred on ſet purpoſe, and told him, that hee had already twenty two ſaucers of blood taken from him: Then ſayd he, Grant it be ſo, and though more have beene drawne, yet muſt we not therefore deſiſt from our enterpriſe, eſpecially ſeeing the two chiefe Indications of blood-letting yet remaine, that is, the greatneſſe of the diſeaſe, and the conſtant ſtrength of the Patient. I being glad of this, tooke three ſaucers more of blood, hee ſtanding by, and was ready to take more but that he wiſhed mee to differ it untill the after noone; wherefore returning after dinner I filled two ſaucers more, ſo that in all, this young man to his great benefit, loſt twenty ſeaven ſaucers of blood at five times, within the ſpace of foure dayes. Now the enſuing night was very pleaſing to him, the feaver left him about noone, the tumor grew much leſſe, the heat of the inflammation was aſwaged in all parts, except in his eyelids, and the lappes of his eares, which being ulcerated caſt forth a great quantitie of *Pus* or matter. I have recited this hiſtory purpoſely, to take away the childiſh feare which many have to draw blood in the conſtant ſtrength of the patient, and that it might appeare how ſpeedy and certaine a remedy it is in inflammations of the head and braine.

The two chiefe Indications in blood letting.

Now to returne from whence we digreſſed, you muſt note that nothing is ſo hurtfull in factures and wounds of the head, as venery; not onely at that time the diſeaſe is preſent, but alſo long after the cure thereof. For great plenty of ſpirits are conteined in a ſmall quantity of ſeed, & the greateſt part thereof flowes from the braine; hence therefore all the faculties, but chiefly the Animall, are reſolved, whence I have divers times obſerved death to enſue in ſmall wounds of the head, yea when they have beene agglutinated and united.

The diſcommoditis of venery in wounds of the head.

All paſſions of the minde muſt in like ſort be avoided, becauſe they by contraction and diſſipation of the ſpirits cauſe great trouble in the body and minde. Let a place be choſen for the Patient as farre from noiſe as can be, as from the ringing of bells, beatings and knockings of Smithes, Coopers, and Carpenters, and from high-wayes through which they uſe to drive Coaches; for noyſe encreaſes paine, cauſes a feaver, and brings many other ſymptomes.

How hurtfull noyſe is to the fractures of the ſcull.

A Hiſtory.

I remember when I was at *Hiſdin* at the time that it was beſeiged by the forces of Charles the fifth, that when the wall beaten with the Cannon, the noiſe of the Ordinance cauſed grievous torment to all thoſe which were ſicke, but eſpecially thoſe that were wounded on their heads, ſo that they would ſay, that they thought at the diſcharging of every Cannon that they were cruelly ſtrucken with ſtaves on that part which was wounded; and verily their wounds were ſo angred herewith, that they bledde much, and by their paine and feavers encreaſed, were forced with much ſighing to breathe their laſt.

Thus much may ſerve to be ſpoken of the cure in generall, now we will out of the monuments of the ancients, treate of the particular.

CHAP. XV.

Of the particular cure of Wounds of the head, and of the muſculous skinne.

Of a ſimple wound of the fleſh and the skinne.

LEt us beginne with a ſimple wound, for whoſe cure the Chirurgion muſt propoſe one onely ſcope, to wit, Vnion; for unleſſe the wound pierce to the ſcull, it is cured like other wounds of the fleſhy parts of our bodies. But if it be compound, as many wayes as it is complicate, ſo many indications ſhew themſelves. In theſe the chiefeſt care muſt bee had of the more urgent order and cauſe.

A degeſtive medicine.

A ſarcoticke Medicine.

An Epuloticke.

Therefore if the wound ſhall be ſimple and ſuperficiary, then the haire muſt firſt bee ſhaven away, then a plaiſter applied made of the white of an egge, bole Armenicke and Aloes. The following day you muſt apply *Emplaſtrum de Ianua*, or elſe *de gratia Dei*, untill the wound be perfectly healed. But if it be deeper and penetrate even to the *Pericranium*, the Chirurgion ſhall not doe amiſſe, if at the ſecond dreſſing he apply a digeſtive medicine (as they call it) which may be made of Venice Turpentine, the yolkes of egges, oyle of Roſes and a little ſaffron, and that ſhall be uſed ſo long, untill the wound come to maturation; for then you muſt adde honey of Roſes and Barly floure to the digeſtive. Hence muſt we paſſe to theſe medicines, into whoſe compoſition no oyly, or unctious bodies enters, ſuch as this; ℞ *Terebinth. venetæ* ℥ij. *ſyrupi roſar.* ℥j. *pul. aloes, Myrrhæ, & maſtich. an* ʒß. Let them all be incorporated and made into an unguent, which ſhall be perfectly regenerated; then it muſt bee cicatriſed with this following powder. ℞ *Aluminis combuſti, corticis granatorum combuſt. an.* ʒj. *Miſceantur ſimul & fiat pulvis*: but if the wound be ſo large that it require a ſuture, it ſhall have ſo many ſtitches with a needle, as need ſhall ſeeme to require.

A Hiſtory.

Whileſt I was at *Hiſdin*, a certaine ſoldier, by falling of the earth whileſt he undermined, had the Hairy ſcalpe ſo preſſed downe even to the *Pericranium*, and ſo whely ſeparated from the beginning of the hinde part of his head, even to his forehead, that it hung over his face. I went about the cure in this manner; I firſt waſht all the wound with wine, a little warmed, that ſo I might waſh away the congealed blood mixed with the earth; then I dryed it with a ſoft linnen cloth, and laid upon it Venice Turpentine mixed with a little *Aqua Vitæ* wherein I had diſſolved ſome *Sanguis Draconis*, Maſtich and Aloes; then I reſtored the hanging skinne to its former place, and there ſtayed it with ſome ſtitches being neither too ſtrait, nor too cloſe together, for feare of paine and inflammation, (which two chiefely happen whileſt the wound comes to ſuppuration) but onely as much as ſhould ſerve to ſtay it on every ſide, and to keepe forth the ayre, which by its entrance doth much harme to wounds:

What things we muſt obſerve in ſoweing.

the lower ſides of the wound, I filled with ſomewhat long and broad tents, that the matter might have paſſage forth. Then I applyed this following cataplaſme to all the head. ℞. *farinæ hord. & fabarum an* ℥vj. *olei roſati* ʒiij, *aceti quantum ſufficit, fiat cataplaſma ad formam pultis*; this hath a faculty to dry, coole, repell mitigate paine and inflammation, and ſtay bleeding.

When we muſt not let blood in wounds.

I did not let him blood, becauſe hee had bled much, eſpecially at certaine arteries which were broken neere his temples; he being dreſſed after this manner grew well in a ſhort time.

A Hiſtory.

But if the wound bee made by the biting of a wilde beaſt, it muſt bee handled after another manner, as ſhall appeare by this following hiſtory. As many people on a time ſtood looking upon the Kings Lyons, who were kept in the Tilt-yard at *Paris* for the delight of King *Henry* the ſecond, and at his charges: it happened that one of the feirceſt of them broke the things wherein he was tyed, and leaping amongſt the company, he with his pawes threw to the ground a Girle of ſome twelve yeeres old, and taking her head in his mouth, with his teeth wounded the muſculous ſkinne in many places, yet hurt not the ſcull. She ſcarſe at length delivered by the Maſter of the Lyons from the jawes of Death and the Lyon, was committed to the cure of *Rowland Claret* Chirurgion; who was there preſent by chance at the ſame time; ſome few dayes after, I was was called to viſite her; ſhe was in a feaver, her head, ſhoulders, breſt and all the places where the Lyon had ſet his teeth, or nailes, were ſwolne, all the edges of the wounds were livide, and did flow with a watriſh, acride, virulent, cadaverous, darke greene and ſtinking matter, ſo that I could ſcarſe endure the ſmell thereof; ſhe was alſo oppreſt with pricking, biting and very great paine; which I obſerving, that old ſaying came into my minde which is: That all wounds made by the bitings of beaſts, or of men alſo, doe ſomewhat participate of poyſon. Wherefore there muſt principally great care bee had of the venenate impreſſion left in the wounds by the nailes and teeth, and therefore ſuch things muſt bee applyed, as have power to orecome poiſon. Wherefore I ſcarrifyed the lips of the wounds in divers places, and applyed Leaches to ſucke out the venenate blood, and eaſe the inflammation of the parts, then I made a Lotion of *Ægyptiacum*, Treacle and Mithridate after the following manner.

The bitings of man and beaſts are venenate.

Theriacall topicke Medicines.

℞. *Mithrid.* ℥j *theriac.* ℥ij. *ægyptiac.* ℥ß. *diſſolvantur omnia cum aqua vitæ, & Cardui ben.* Let the wounds be fomented and waſhed with it warme; beſides alſo Treacle and Mithridate were put in all the medicines which were either applyed or put into the wound; and alſo of the ſame with the conſerves of Roſes and Bugloſſe diſſolved in the water of Sorrell and *Carduus benedictus*, potions were made to ſtrengthen the heart and vindicate it from maligne vapours.

A Cordiall Epithema.

For which purpoſe alſo this following *Epithema* was applyed to the region of her heart. ℞. *aquæ roſar. & nenuphar, an.* ℥iiij. *aceti ſcillitici* ℥j. *corallorum, ſantalorum alborum & rubrorum, roſar rub. pulveris ſpodij. an.* ℥j. *Mithridatij, theriacæ, an.* ʒij. *flo. cordial. pulveriſatorum p. ij. croci* ʒ, j. diſſolve them altogether, make an Epitheme and apply it to the heart with a ſcarlet cloth or ſpunge, and let it bee often renued. Verily ſhe dreſt after this manner, and the former remedies but once uſed, paine, inflammation and all the maligne ſymptomes were much leſſened; to conclude ſhee recovered, but lingred and was leane ſome two yeares after, yet at lengh ſhe was perfectly reſtored to her health and former nature. By which you may underſtand, that ſimple wounds muſt be handled after another manner, than theſe which have any touch of poiſon.

The cure of the Hairy ſcalpe when it is contuſed.

But now that we may proſecute the other affects of the hairy ſcalpe; ſay that it is contuſed with a blow without a wound, that which muſt bee firſt and alway done, (that ſo the affect may better appeare, and the remedies which are applyed may take more effect) the haire muſt be ſhaven away, and at the firſt dreſſing a repelling medicine applyed, ſuch as is this following *Oxyrhodinum.* ℞. *ol. roſ.* ℥iij. *album. ovorum nu.* ij. *pulveris nucum cypreſſi, balauſt. alumin. rochæ, roſar. rub. an.* ʒj. Let them be all incorporated, and make a medicine for the former uſe, or in ſteed thereof, you may apply the cataplaſme preſcribed before conſiſting of *Farina hordei, ſabarum, aceto & oleo roſaceo.* But ſuch medicines muſt be often renued. When the paine aud defluxion

A repelling medicine.

A diſcuſſing Fomentation.

Ceratum de Minio.

Deterſive or clenſing medicines.

are appeaſed, wee muſt uſe diſcuſſing medicines for the diſſipation of that humor which remaines impacted in the part; ℞ *Emplaſtri de mucilagin.* ʒij. *oxicrocei, & emp. de meliloto, an.* ℥j. *olei chamam. & anethi, an.* ℥ß. *malaxentur ſimul & fiat emplaſtrum ad uſum dictum.* Such a fomentation will alſo be good. ℞ *vini rub. lib.* iiij. *lixiuij. com. lib.* ij. *nuces cupreſſi contuſ. nu.* x. *pul. myrtillorum* ℥j. *roſar rub. abſinth. fol. ſalviæ, majoranæ, ſtæchados, florum chamam. melil. an.* M.ß. *aluminis rochæ, radicis cyperi, calami aromatici an.* ℥ß. *bulliant omnia ſimul,* and make a decoction to foment the grieved part. After ſomewhat a long fomenting it, whereby it may the better diſcuſſe, dry and exhauſt the concrete humor; the head muſt be dryed & more diſcuſſing things applyed ſuch as the Cerate deſcribed by *Vigo* called *de minio,* which hath an emollient and digeſtive faculty in this forme. ℞ *Olei chamam. lilior. an.* ℥x. *olei maſtich.* ℥ij. *pinguedinis vervecis lib.* j. *litharg. auri,* ℥viij. *miny* ℥ij. *vini boni cyathum unum, bulliant omnia ſimul baculo agitando, primum quidem lento igne, mox verò luculentiore, donec tota maſſa colorem nigrum vel ſubnigrum contrahat; adde in fine cocturæ Terebinth. lib.* ſ. *pulveris maſtich.* ℥ij. *gum. elemi.* ℥j. *ceræ quantum ſufficit, bulliant rurſus una ebullitione & fiat empl. molle.* But if the humor be not thus diſcuſſed, but onely grow ſoft, then the tumor muſt be quickely opened, for when the fleſh is inflamed and putrifyed through occaſion of the conteined humor, the bone under it putrifies alſo by the contagion of the inflammation and the acrimony of the matter falling upon the bone. When you have opened it, waſh away the filth of the ulcer with this following deterſive medicine. ℞. *ſyrupi roſ. & abſinth. an.* ℥j. *terebinth.* ℥iß. *pul. ireos, aloes, maſtichis, myrrhæ, farinæ hordei an.* ʒß. In ſteed hereof if there be great putrifaction *Ægyptia.* either by it ſelfe, or mixt with an equall quantity of *Vnguentum apoſtolorum* may be put into the ulcer. When the ulcer is clenſed it will be time to uſe ſcarcotike and cicatrizing medicines.

CHAP. XVI.

Of the particular cure of a fractured or broken ſcull.

Why the *Pericranium* hath ſuch exquiſite ſenſe.

Gal. 6. Meth.

The bones are offended with the application of humide things.

IF the ſcull be bebroken, ſo that it be needefull to trepan it, or to elevate and lift it up, or ſcrape it away, the muſculous skinne being cut as wee formerly noted, the *Pericranium* ſhall be plucked from the ſcull, as wee ſayd before; which becauſe it can hardly bee done without great paine, by reaſon of its exquiſite ſenſe and connexion with the membranes of the braine, we muſt labour to mittigate the paine for feare of inflammation and other accidents. Therefore the firſt dreſſing ended and the corners of the wound drawn each from other; at the ſecond dreſſing put to the wound, a digeſtive (as they terme it) made of the yolke of an egge, and oyle of Roſes, but you muſt apply no humide thing to the bone, becauſe we deſire to keepe it ſound and whole. For *Galens* opinion is, that bared bones muſt not be touched with unctuous things; but rather on the contrary all dry things muſt bee applyed to them, which may conſume the ſuperfluous humidity. Therefore we muſt lay ſome linte and the cephalicke powders which we ſhall hereafter deſcribe, upon the bone we intend to preſerve, and muſt have diligent care that it be not offended either by the the ayre, or touch of humide medicines. You muſt in Trepaning have a ſpeciall care of the *Craſſa Meninx.* For I have often obſerved a great quantity of blood to have flowed from ſome broken veſſell, which adhered to the ſecond Table: neither muſt we preſently and forthwith ſtay ſuch bleeding, but ſuffer it to flow according to the plenitude and ſtrength of the patient; for thus the feaver, and together therewith the reſt of the ſymptomes are diminiſhed.

Lib. de ulcer.

For in the opinion of *Hippocrates*, in every greene wound it is good to cauſe often bleeding, except in the bellies; for thus the vehemencie of paine, inflammation and other accidents will bee leſſe troubleſome; alſo it is not amiſſe too for old ulcers to bleed much, for ſo they are freede from the burden of the impact humors. When you thinke it hath bled ſufficiently, it may be ſtanched with this following medicine deſcribed by *Galen.*

Gal. 6. Meth.

℞ *pulveris Aloes* ʒij, *thuris, maſtiches an.* ʒiß. *albumina ovorum nu.* ij.

agitentur ſimul cum pilis leporinis minutim inciſis, fiat medicamentum. When the bleeding is ſtayed, you ſhall for the aſwaging of paine, droppe upon the *Meninx* ſome Pidgions blood, yet warme by opening a Veine under the wing, then it ſhall bee ſtrewed ouer with this following powder, ℞ *Aloes, thuris, myrrhæ, ſanguinis draconis an.* ʒj. *Miſce, fiat pulvis ſubtilis.* Alſo you may make an irrigation with Roſe Vinegar, or ſome repelling medicine; ſuch as is a cataplaſme *ex farinis, & oleo roſaceo.* Which may bee applyed untill the fourth day to aſwage and mittigate paine.

Vigoes Cerate will be of good uſe in this caſe, as that which in my opinion is moſt fit for fractures of the ſcull, becauſe it drawes powerfully, reſolves and dries moderately, and by reaſon of the ſmell refreſhes the animall ſpirits, and ſtrengthens the braine and membranes thereof, as you may eaſily perceive by things which enter into the compoſition thereof.

Vigoes Cerate good for a broken ſcull.

℞ *Olei roſ. Omph. reſinæ pini, gummi Elemi. an* ℥ij. *Maſtiches* ℥iß. *pinguedinis vervecis caſtrati* ℥ijß. *foliorum beton. caprifol. anthos an. M.* j. *ammoniaci* ʒß. *granorum tinctorum* ʒx. *liquata pinguedine terenda terantur, & ammoniacum ſimul cum aceto ſcillitico, eliquetur; deinde bulliant omnia ſimul in lib.* ij. *vini boni, lento igne uſque ad conſumptionem vini, deinde exprimantur; cum expreſſione addantur terebinth, Ven.* ℥iiij. *ceræ albæ quantum ſufficit, fiat cerotum molle ad uſum prædictum.* Alſo let the necke, and all the ſpine of the backe bee annointed with a liniment, which hath force of mollifing the Nerves, leſt they ſhould ſuffer convulſion; ſuch is this.

℞ *Rutæ, marrubij, roriſmar. ebulor, ſaluiæ, herb. paralyſ. an. M. ſ. rad. Ireos, cyperi, baccarum lauri. an.* ℥j. *florum chamæ. melil. hyperici, an. M.* j. *piſtentur & macerentur omnia in vino albo per noctem, deinde coquantur in vaſe duplici cum olei lumbricorum, liliorum, de terebinthina, axungiæ, anſeris & hum. an.* ℥ij *uſque ad conſumptionem vini, poſtea colentur & in colatura adde terebinth. venet.* ℥iij. *aquæ vitæ* ʒß. *ceræ quantum ſufficit. fiat linimentum ſecumdum artem.*

A liniment good againſt convulſions.

But when the paine is aſwaged, we muſt abſtaine from all ſuch unctuous things, leſt they make the wound become ſordide and maligne, and putrifie the adjacent parts, and conſequently the *Craſſa Meninx* and ſcull; for the integrity of all parts may be preſerved by their like, and ſuch are dry things in a fracture of the ſcull. Wherefore all humide and oyely things muſt be ſhunned in the cure thereof, unleſſe peradventure there ſhall bee ſome neede to mitigate paine and bring the humor to ſuppuration.

For according to *Galen*, wee are oft forcſt for a time to omit the proper cure of the diſeaſe, ſo to reſiſt the ſymptomes; furthermore *Hippocrates* would have us not to foment the ſcull, no not with wine, but if we doe, to let it be but with very little. *Vidius* interprets that little to be, when there is feare of inflammation; for wine if it be red, tart and aſtringent, hath a repreſſing refrigerating and drying facultie: for otherwiſe all wine although it heates and dries by its faculty, yet it actually humects and cooles, both which are very hurtfull in wounds of the head, or a fractured ſcull, eſpecially when the bone is bare; for from too much cooling of the braine there is feare of a convulſion, or ſome other evill ſymptome.

Gal.4. Meth.

How farre humide things are good for a fractured ſcull:

Wherefore let this be ratified, that is, We muſt not uſe humide and unctuous medicines in wounds of the head, except for curing of an inflammation, or the mitigation of paine cauſed thereby. Therefore let the bared ſcull bee ſtrewed with catagmaticke and cephalicke powders, (being ſo called by the ancients, for that they are convenient and good in fractures of the ſcull & the reſt of the bones) for by their dryneſſe they conſume the ſuperfluous humiditie, and by that meanes helpe nature in the ſeparating of the broken bones, and the regenerating of fleſh. Such pouders uſually conſiſt of ſuch things as theſe enſuing.

Why Cephalicke or Catagmaticke pouders are good.

Thus, radix Iridos florent. farina Hordei, & Ervi, pulvis Aloes Hepaticæ, ſanguis Draconis, maſtiche, Myrrha, rad. Ariſtolochiæ, Gentianæ: and generally all ſuch ſimples as have a drying and an abſtergent faculty without biting; but you muſt not uſe theſe things before the paine, inflammation and apoſtumation bee paſt; that is then, when the membranes muſt be clenſed, the bones ſcaled, and the fleſh generated.

When to uſed,

For the ſcull by how much it is the dryer, by ſo much it requires and more eaſily endures more powerfull and dryer medicines, than the *Dura Mater* or *Pericranium*, as that which in quickneſſe of ſenſe comes farre ſhort of theſe two. Wherefore when you would apply the forementioned cephalicke pouders to the *Meninges*, they muſt be aſſociated and mixed with honey, ſyrupe of roſes or of wormewood and ſuch other like, that ſo their too violently drying faculty may be alayed and tempered.

How to be mixed when trey are to bee applyed to the Meninges.

Chap. XVII.

Why we uſe Trepaning, in the Fractures of the ſcull.

There are foure cauſes of this remedy. The firſt is, to raiſe up the depreſt bones, and take forth their fragments, which preſſe upon the *Meninges*, or alſo upon the ſubſtance of the braine. The ſecond is, that the *Sanies* or matter may bee evacuated, clenſed, waſted, and dryed up, which by the breaking of any veſſell is poured forth upon the Membraines, whereby they are, and not they onely, but the Braine alſo is in great danger of corruption. The third is, for the fitter application of medicines, convenient for the wound and fracture. The fourth is, that ſo we may have ſomething whereby we may ſupply the defect of a Repelling Ligature, and ſuch an one as may hinder defluxions; for ſuch a Ligature cannot take place here as it may in the other parts of the body, by reaſon of the Sphæricall or Round figure of the head, which doth not eaſily admit binding; and then the denſity and hardneſſe of the interpoſed ſcull is a meanes that the veſſells lying under it (by which uſually the defluxion comes) cannot eaſily be bound with a rowler ſufficiently to repell the running blood. And the externall veſſells, (to whom the force of the Ligature may come) cannot bee bound without great paine, and danger of Inflammation.

Why a repelling Ligature cannot be uſed in fractures of the Scull.

For by ſuch a compreſſion the pulſation of the Arteries would be intercepted, and the effluxe of the fuliginous excrements which uſeth to paſſe through the ſutures of the ſcull, would be ſupreſt, by reaſon of the conſtriction of theſe ſutures.

Beſides alſo, the blood would thus bee forced from the wounded part without, to within into the Membranes and Braine; whence paine, Inflammation, a Feaver, Abſceſſe, Convulſion, Palſie, Apoplexie, and laſtly death it ſelfe would enſue.

And theſe are the chiefe cauſes, that Trepaning is neceſſary in fractures of the ſcull, and not ſo in the fractures of other bones.

How the patient muſt be placed when you Trepan him.

But before you apply or put to your Trepan, the Patient muſt bee fitly placed or ſeated, and a double cloth muſt be many times wrapped about his head, and then his head muſt be ſo laid, or preſſed upon a Cuſhion or pillow, that when yon come to your operation, it may not ſinke downe any further, but remaine firme and ſteddy.

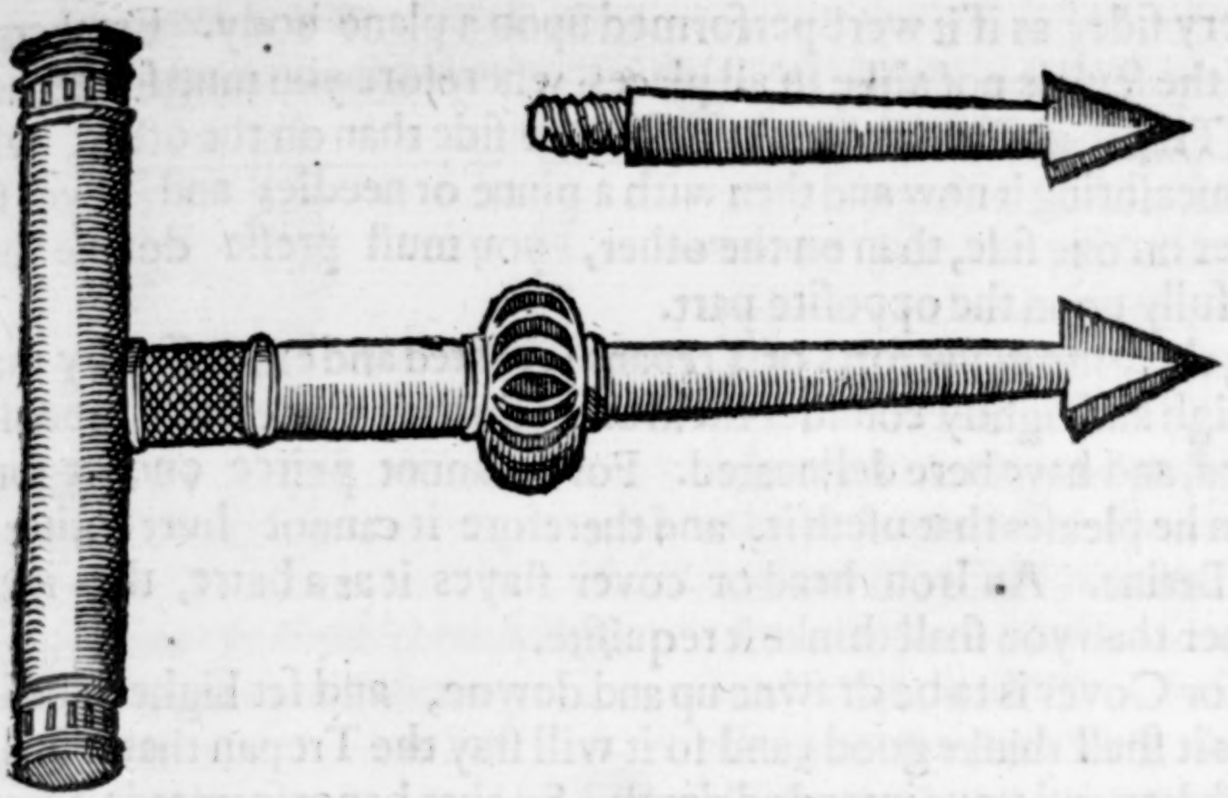
Then you muſt ſtoppe the patients eares with Cotton-wooll, that ſo hee may not heare the noiſe made by the Trepan, or any other Inſtrument.

What to be done before the application of the Trepan.

But before you put to your Trepan the bone muſt be pierced with an Inſtrument, having a three ſquare point, that ſo it may bee the more ſpeedily and certainely perforated The point thereof muſt be no bigger then the pin of the Trepan, that ſo the Trepan which is forthwith to bee applyed may ſtand the more firmer, and not play to and againe in too wide a hole.

The ſhape of this Inſtrument is not much different from a Gimblet, but that the point is three-ſquare, and not twined like a ſcrew; as you may perceive, by this following figure.

A Gimblet or peircer to perforate the ſcull, before the ſetting too of the Trepan.



A. *Shewes the handle.*
B. *The points which may be ſcrewed and fitted into the handle.*

CHAP. XVIII.

A deſcription of Trepans.

TRepans are round ſawes,which cut the bone circularly more or leſſe according to their greatneſſe; they muſt have a pinne ſtanding in the middle a little further out than their teeth,ſo to ſtay and hold faſt the Trepan that it ſtirre neither to this ſide nor that, untill it bee entred and you have cut through the firſt table at the leaſt: then you muſt take forth the pinne, leſt going quite through the bone, it may pricke or hurt the *Craſſa Meninx*.

Wherefore when you have taken forth the pinne, you may ſafely turne it about untill you have cut through both the tables; Your Trepans muſt alſo have a cappe, or ſomewhat to engirt or encompaſſe them, leſt no way hindred they cut more of the bone than we would, and in concluſion runne into the *Meninx*.

They muſt alſo be anointed with oyle, that ſo they may cut the more readily and gently; for thus Carpenters uſe to greaſe their ſawes. But you muſt,during the time of the operation, often dippe them in cold water, leſt the bone by attrition become too hot: for all hard ſolide bodies by quicke and often turning about, become hot; but the bone made more hot and dry, is altered and changeth its nature, ſo that after it is cut,more of it ſcailes and falls away.

The harme the bone receives by being heated with the Trepan.

Now you muſt know that the bone,which is touched with the Trepan,or the Aire, alwayes caſts off ſcailes, for the ſpeedier helping forwards whereof, you muſt ſtrew upon it pouders made of Rocket, Briony,wilde Coucumber and *Ariſtolochia* roots. When the bone is ſufficiently ſcaled let this following powder be put upon it, which hath a faculty to cover the bone with fleſh, and to harden it with dryneſſe convenient to its kinde.

What things haſten the ſcailing of the bone.

℞ *Pulver. Ireos Illyricæ, Aloes, Manna thuris, Myrrhæ, ariſtolochiæ an* ʒj. Fleſh being by this meanes generated, let it be cicatrized by ſtrewing upon it the rindes of Pomegranats and Alome burnt.

Neither ſhal the Chirurgion forcibly take away theſe ſcales, but commit that whole worke to nature, which uſeth not to caſt them off before that it hath generated fleſh under them. For otherwiſe if he doe any thing raſhly, hee brings new corruption to

The bone muſt not be forcibly ſcailed.

the bone; as we ſhall more at large declare, when wee come to treate of the *Caries* or Rottenneſſe of bones.

A caution in Trepaning.

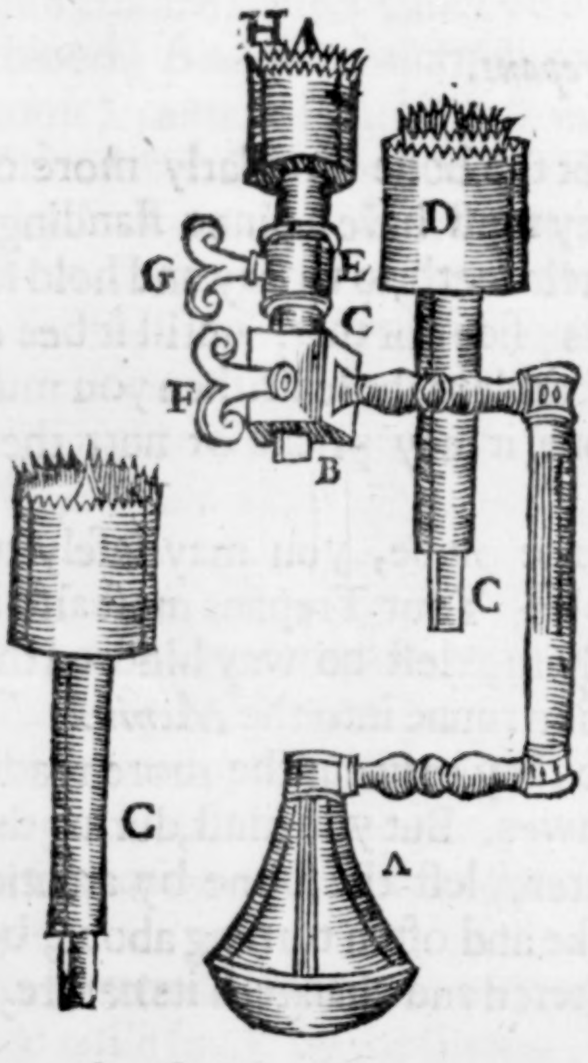
He which uſeth the Trepan, muſt conſider this, that the head is of a round figure, and alſo the Trepan cuts circularly, and therefore it is unpoſſible to cut the bone ſo equally on every ſide, as if it were performed upon a plane body. Furthermore the thickneſſe of the ſcull is not alike in all places; wherefore you muſt looke, and marke whether the Trepan goe not more deepe on one ſide than on the other, which you may doe by meaſuring it now and then with a pinne or needle; and if yee finde that it is cut deeper on one ſide, than on the other, you muſt preſſe downe the Trepan more powerfully upon the oppoſite part.

A ſafe and convenient Trepan.

But ſeeing there are many ſorts of Trepans invented and expreſſed by many men, yet if you weigh and rightly conſider them all, you ſhall finde none more ſafe, than that I invented, and have here delineated. For it cannot peirce one jot further into the ſcull, than he pleaſes that uſeth it, and therefore it cannot hurt either the *Meninges* or the Braine. An Iron head or cover ſtayes it as a barre, that it can penetrate no further than you ſhall thinke it requiſite.

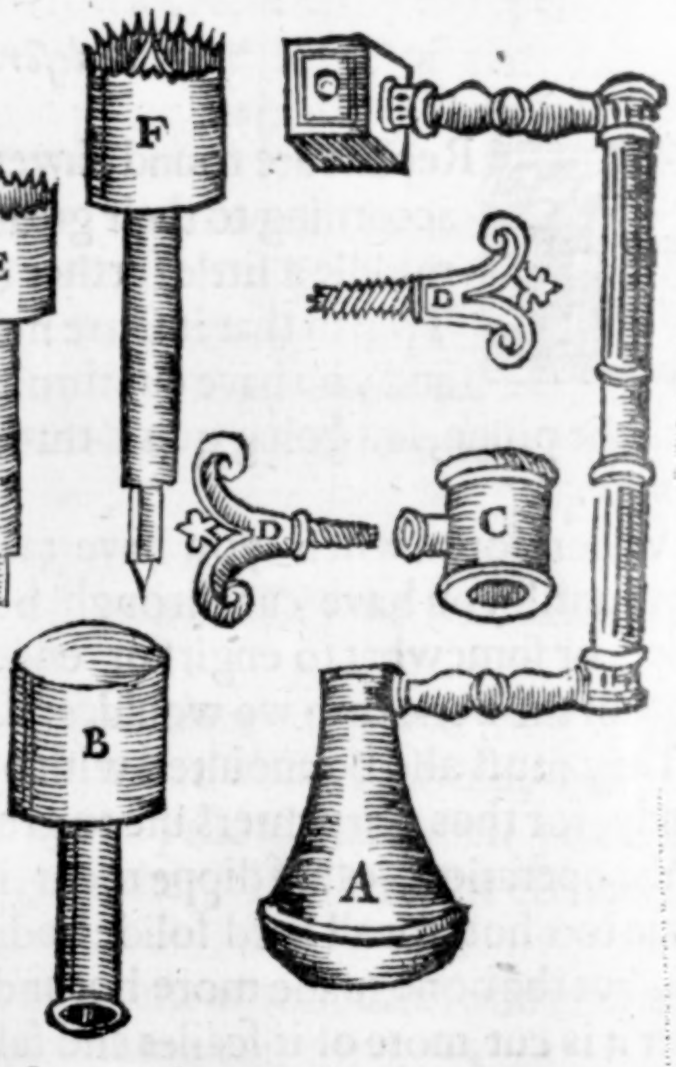
This head or Cover is to be drawne up and downe, and ſet higher and lower, as he which uſes it ſhall thinke good, and ſo it will ſtay the Trepan that it ſhall not goe a haires bredth beyond your intended depth. So that henceforwards there ſhall be no Chirurgion, howſoever ignorant in the performance of his Art, which by the benefit of ſuch a Trepan may not performe this operation without any danger or feare of danger of touching the *Dura Mater*; the hurting whereof, puts the life in jeopardie.

The figure of our Trepan opened and taken in peeces.



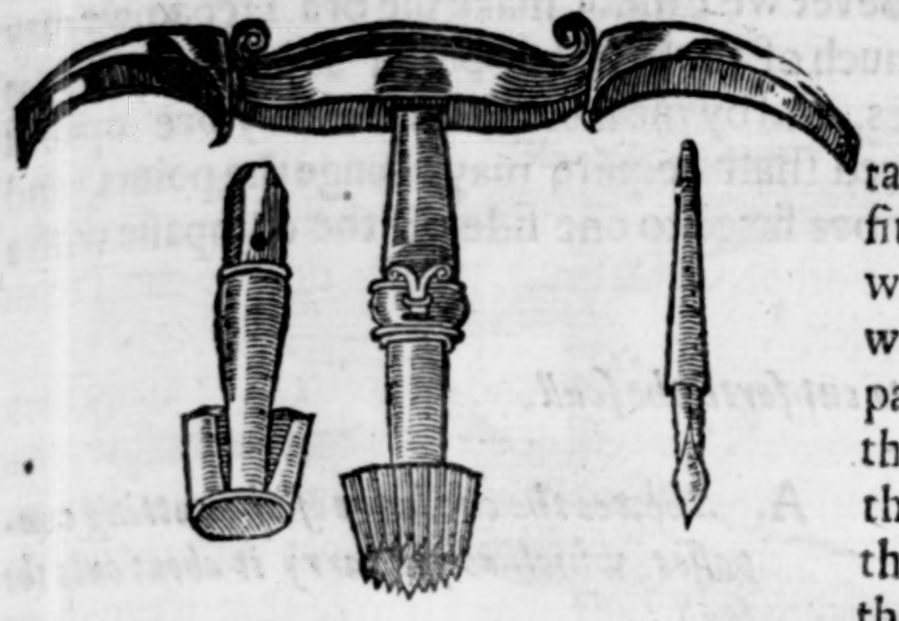
- A. *Shewes the whole handle or Brace of the Trepan.*
- B. *The Cover or Cap of the Trepan.*
- C *The ferule.*
- D.D. *The ſcrew pins which hold and ſtay the ferule and Trepan.*
- E. *The Trepan without his pinne.*
- F. *The Trepan furniſhed with its pinne.*

The figure of the ſame Trepan fitted and put together.



- A. *Shewes the Brace and Trepan fitted in every point.*
- B. *The place into which the Trepan is put and fitted.*
- C.C.C. *The upper end of the Trepan which is to be fitted and put into the Braine.*
- D. *The Trepan with its cover or cap upon it.*
- E. *The ferule.*
- F. *A ſcrew pin by the twining whereof the Trepan is faſtened in the Brace.*
- G. *Another ſcrew pin which faſtnes the ferule closer to the Trepan.*
- H. *The Three ſquare point.*

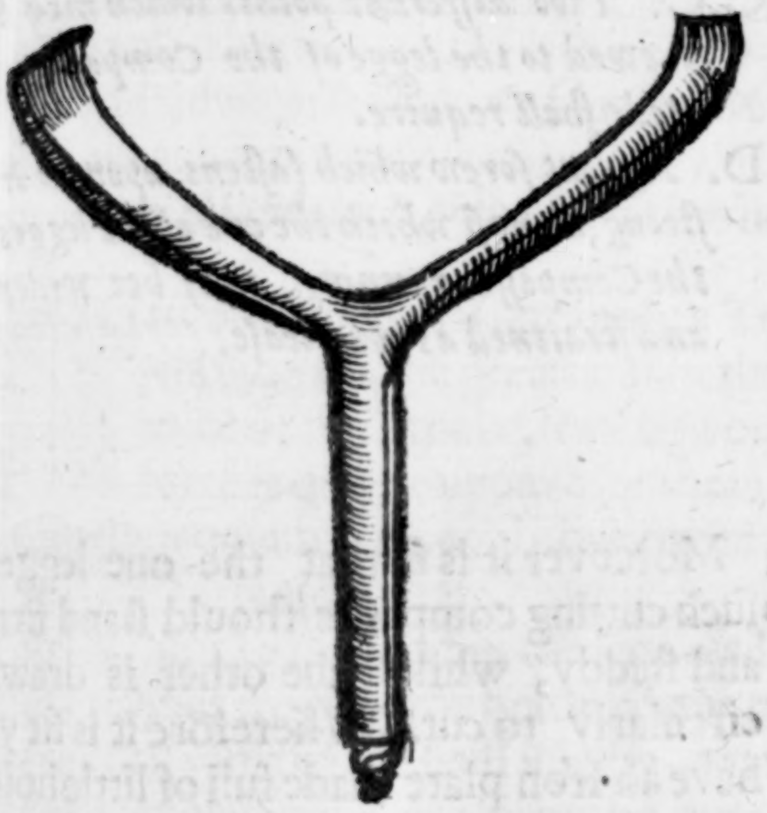
In ſtead of the other Trepan ſet forth by the Author, I have thought fit to give you the figure of that Trepan that is here moſt in uſe, and the fitteſt therefore, as it is ſet forth by Mr. Doctor *Crooke*.



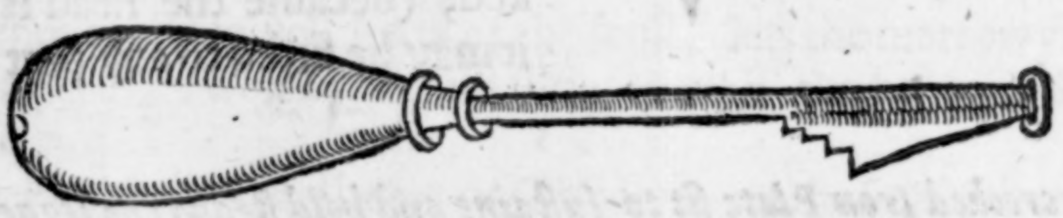
A Terebellum *or Gimblet conſiſting of three branches.*

All theſe particulars of the Trepan taken in ſunder, you may ſee united and fitted together in the other figure. But when you cannot bring out the bone which you have cut off with your Trepan; then you may take it forth with the *Terebellum* or Gimblet here expreſt, that is, ſcrewing the point thereof into the hole made by the threeſquare pin; the handle of this Inſtrument may alſo ſerve in ſteed of a Levatorie.

When with the Gimblet you have drawne or taken forth that part of the ſcull which was cut away by the Trepan; if there ſhall bee any ſharpe ſplinters in the ſecond table, which may hurt and pricke the *Meninx*, when it is heaved up by the motion of the braine, they muſt be ſhaved away and planed with this Lentill faſhioned ſcraper, being ſo called, becauſe it hath the head thereof faſhioned and ſmooth like a Lentill, leſt being ſharpe it ſhould hurt and pricke the membrane in the ſmoothing thereof.



A Lentill-like cutting Scraper.



But if by reaſon of the thickneſſe, the ſcull cannot bee cut with this Lentill-like ſcraper, you may uſe the cutting ſcrapers and a mallet. The mallet muſt be of leade, that ſo it may ſhake the braine as little as may be. But you muſt diligently with your mullets take forth the ſharpe ſplinters, and peeces of the bone. But if the fractured part of the ſcull bee ſuch, that it will not admit that ſection which is requiſite for the bared bone, as when the fracture is upon the temporall muſcle, or at the ſutures; then in the ſteed of one Trepan, two or three muſt be applyed, if the neceſſity of the preſent caſe ſo require, and that within a very ſmall compaſſe; but they muſt not bee applyed to the fractured part, but nigh thereto, as we ſhall ſhew more at large in the following chapter.

The uſe of a Leaden Mallet.

Why a Trepan muſt not be applyed to the ſutures.

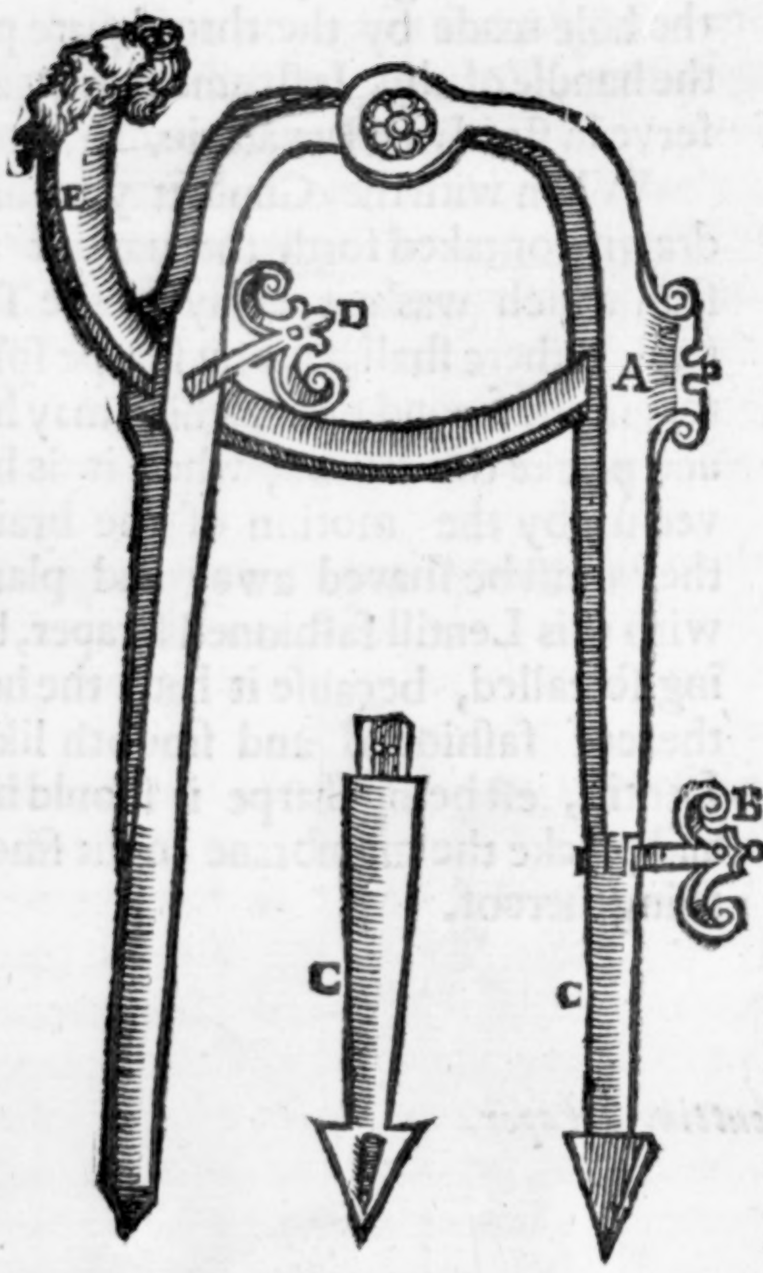
But the Trepans ſhall be applyed ſo neere to each other, that the ring of the ſecond may be joyned with the ring of the firſt and third. But if a fracture ſhall happen to light upon a ſuture, then you muſt not apply a Trepan to it, but uſe two thereto on each ſide; he that ſhall doe otherwiſe, ſhall teare in ſunder the nervous and membranous fibers, and alſo the veines and arteries by which the *Dura Mater* is faſtned to the ſcull, and yeelds matter to the *Pericranium*. He which ſhall apply one Trepan, that

Why two Trepans are to be uſed to a fractured ſuture.

that is, but upon one ſide of the ſuture, he ſhall not bee able to get forth all the *Sanies* which is fallen downe on both ſides by reaſon of the partition of the *Craſſa Meninx* which lyes betweene, and riſes up by the ſutures of the ſcull.

To conclude, when for what cauſe ſoever we cannot make uſe of a Trepan, we may imploy this inſtrument, if ſo bee as much of the bone bee bared as is needfull. It is made in forme of a paire of Compaſſes, and by meanes of a ſcrew may bee opened more or leſſe as you pleaſe. You as need ſhall require may change the points, and put other in their places, for they may bee fitted to one ſide of the compaſſe with a ſcrew.

A paire of cutting Compaſſes to cut forth the ſcull.



A. *Shewes the one legge of the cutting compaſſes, which as you carry it about cuts the ſcull.*

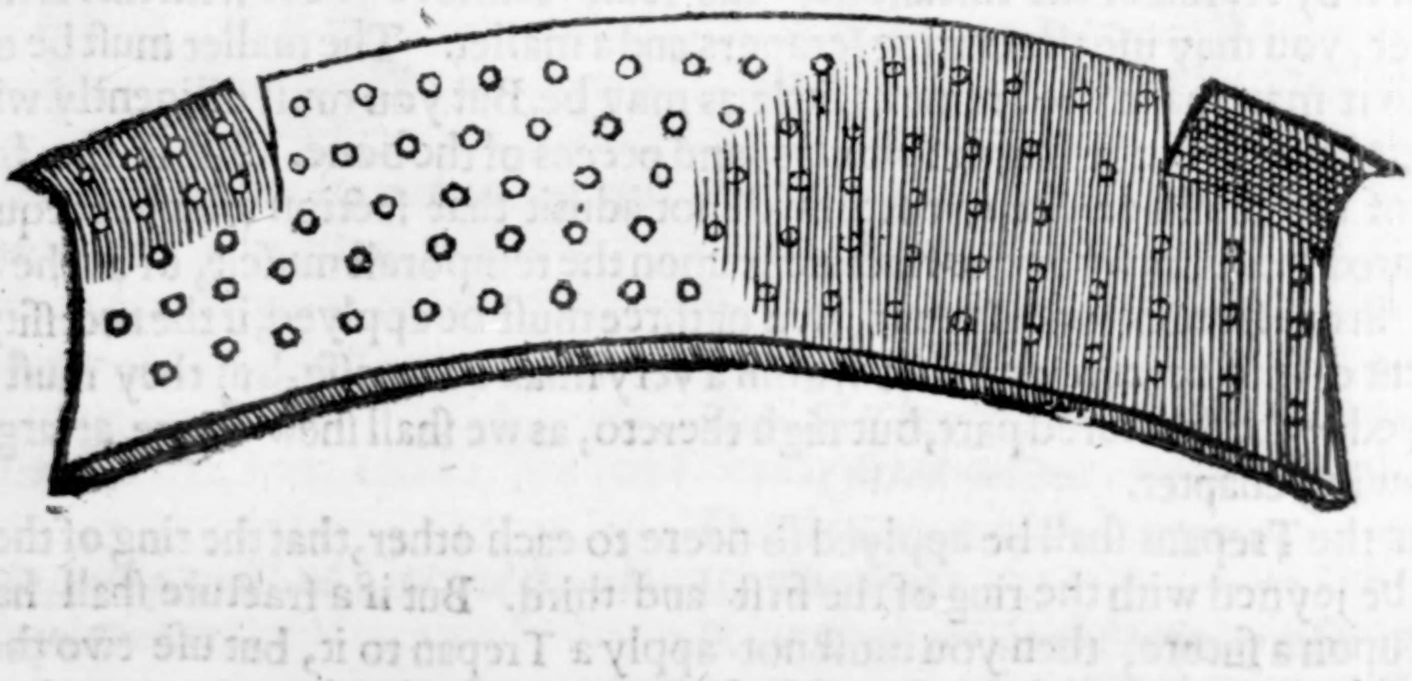
B. *The ſcrew which faſtens the point to the legge of the compaſſes.*

C.C. *Two different points which may bee ſcrewed to the legge of the Compaſſes, as neede ſhall require.*

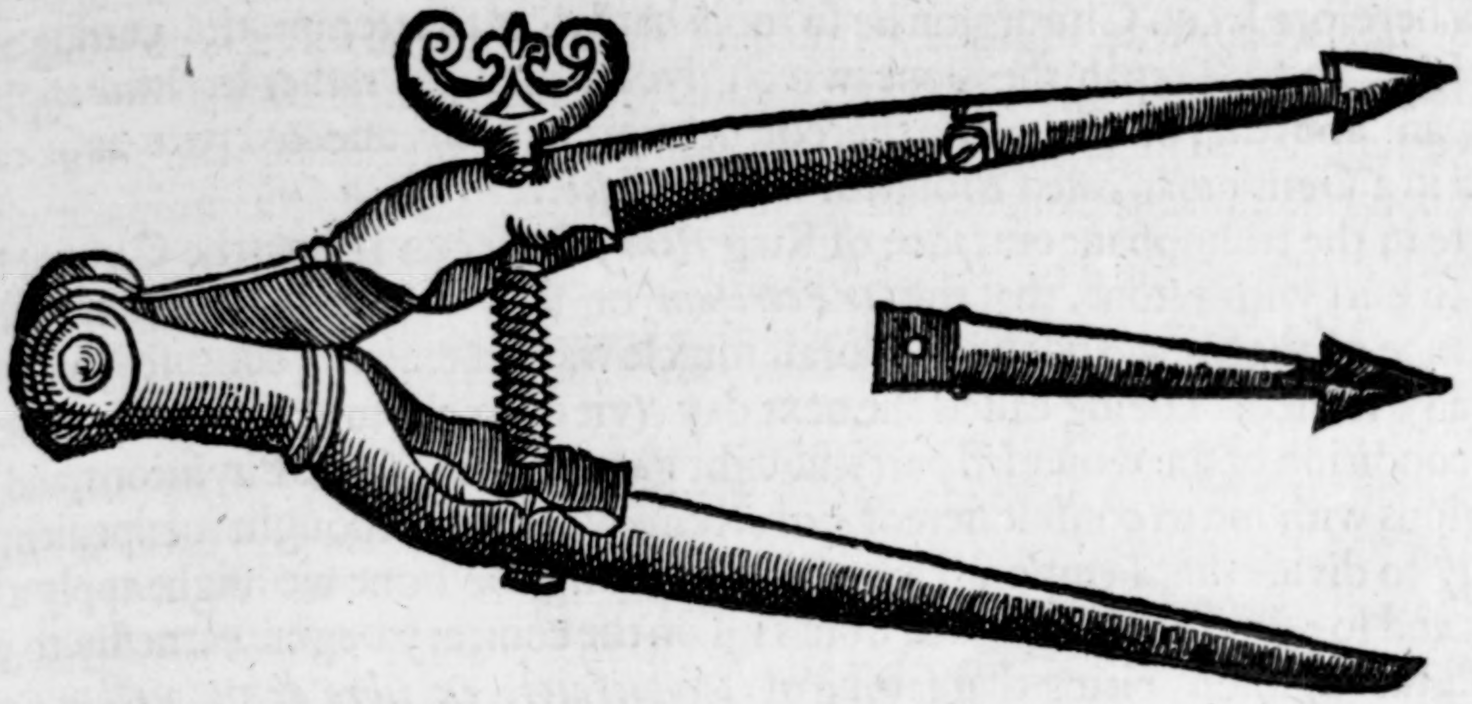
D. *A great ſcrew which faſtens upon an Iron ſtring, alongſt which the one of the legges of the Compaſſe running, may bee widened and ſtraitned as you pleaſe.*

Moreover it is fit that the one legge of ſuch cutting compaſſes ſhould ſtand firme and ſteddy, whileſt the other is drawne circularly to cut. Wherefore it is fit you have an Iron plate made full of little holes, whereiny ou may firmely ſtay that legge of the compaſſe, leaſt it waver againſt your will; it is requiſite that this plate be crooked, (becauſe the head is round) that ſo it may be fitted to any part thereof.

A crooked Iron Plate fit to ſuſtaine and hold ſteddy one legge of the Compaſſe upon the head.



Another paire of Compaſſes of the like nature and uſe, which may be widened and ſtraightned by a ſcrew.



CHAP. XIX.

Of the places of the ſcull whereto you may not apply a Trepan.

FIrſt of all, you ſhal not apply a Trepan, to a bone that is ſo broken that it is wholy, or in the greater part thereof divided from the ſcull by the violence of the ſtroake, leaſt by your weight and preſſing of the Trepan, you force it downe upon Membrane.

A bone almoſt ſevered from the ſcull muſt not be Trepaned.

Secondly, you muſt not apply one to the fractured Sutures, for the reaſons mentioned in the former chapter.

Thirdly, nor to that part of the forehead which is a little above the eye-browes, for theſe reaſons we gave you before in the twelfth chapter. For there is in that place under the firſt table of the ſcull it ſelfe, a large cavitie repleniſhed with a certaine white and tough humor, as alſo with a certaine ſpirituous and ayrie ſubſtance, placed there by nature, to prepare the aire which aſcends to the braine by the Noſe-thrills: unleſſe the Chirurgion obſerve and be mindfull hereof, he may bee deceived, ſuppoſing this cavity to be an Effracture of the bone and a depreſſion thereof.

A notable cavitie in the forehead bone.

Fourthly, neither in the loweſt parts of the ſcull, leſt the marrowy ſubſtance of the Braine, by reaſon of its weight, ſhould ſlide through the hole made by the Trepan.

Fiſthly, neither to the *Bregma* bones of Children, as thoſe which as yet have not acquired juſt ſoliditie, to endure the impreſſion of a Trepan.

Sixtly, nor to the temples by reaſon of the Temporall muſcle, the cutting whereof in the opinion of *Hippocrates* cauſes convulſion of the oppoſite part. For being cut athwart it looſes its proper action, that is, to move and lift up the lower Iaw; but then the oppoſite Temporall muſcle being whole and perfect, uſing its ſtrength, (his Antagoniſte ſuffering it, and not reſiſting or labouring any thing at all to the contrary) it drawes the ſame Iaw to it, whereupon the mouth and all the parts of the face are drawne awry, and ſuffer a Convulſion towards the ſound part, the other being reſolved according to *Hippocrates* his rule.

Lib. de Vul. ca.

For as often as the muſcles of one kinde are equall in number, magnitude and ſtrength on each ſide, the reſolution of the one part, cauſes the Convulſion of the other.

A rule out of *Hippocrates.*

Neither doth this danger alone ariſe from the cutting of the Temporall muſcle, but alſo another, which is, that this muſcle when we eate and ſpeake, is in perpetuall motion, whereby it comes to paſſe, that being once cut, it is ſcarſe ever united againe, beſides alſo the commiſſure or joyning together of the ſtonie bones lye under it.

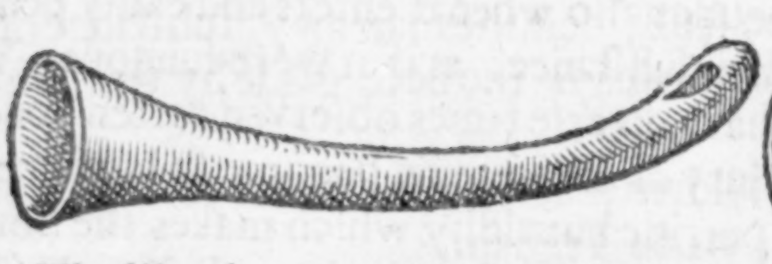
What diſcommodities ariſe from cutting the temporall muſcle.

But by the ſecond caution we are forbid to Trepan upon the ſutures; moreover alſo many Veines, Arteries and Nerves are ſpred over the ſubſtance thereof, ſo that by cutting of them, there is danger of many and maligne ſymptomes, as paine, inflammation, a feaver, a convulſion not onely of the part it ſelfe, but alſo of the whole body, whence laſtly death enſues.

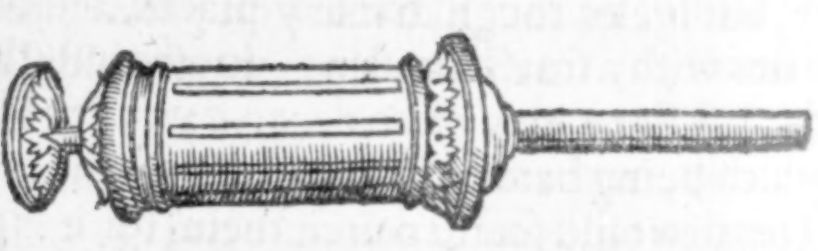
Wherefore let no Chirurgion be ſo foole hardy, as to attempt the cutting of this muſcle, ſo to Trepan the bone which lyes under it; rather let him apply his Trepan above it, or on the ſide thereof, or as neere to the affected part as he can, as I did in a Gentleman caled Monſieur *de la Breteſche*.

A hiſtory.

He in the triumphant entrance of King *Henry* the ſecond, into the City of *Paris*, was ſo hurt with a ſtone, that the *Os Petroſum* or ſcaly bone, was broken with the violence of the blow, and the temporall muſcle was vehemently contuſed, yet without any wound. I being called the next day (viewing the manner of the hurt, and the condition of the wounded part) thought good to bring ſome Phyſitions, and Chirurgions with me to conſult hereof, of whom when ſome thought it expedient preſently to divide the Temporall muſcle, that baring the bone we might apply a Trepan, and ſo take forth the broken bones: I on the contrary begun earneſtly to withſtand that opinion, citing that ſaying of *Hippocrates, ex libro de vulneribus Capitis*, wherein Chirurgions are forbidden to cut ſuch muſcles, for feare of the forementioned ſymptomes; alſo I cited experience, how that I had often obſerved all thoſe which had this muſcle cut, dyed with a convulſion; but that it ſhould be farre better, that neere above the fracture the bone ſhould be Trepaned, not touching the Temporall muſcle at all if he could. When all of them at the laſt had inclined to my opinion, I preſently divided the muſculous ſkinne which was over the upper part of the fracture with a three cornered ſection: the day following which was the third of his diſeaſe I Trepaned him, and after I had done, ſome few dayes after, I tooke out ſome foure ſplinters of the broken bone; and I put in a plaine leaden pipe, by which (I wiſhing the patient ever when I dreſt him to hold downe his head, to ſtoppe his mouth and his noſe, and then ſtrive as much as in him lay to put forth his breath) much ſanious matter came forth, which was gathered betweene the ſcull and *Craſſa Meninx*. Other filth which ſtucke more faſt, I waſhed out with a detergent decoction, injected with ſuch a ſyring as is heere expreſt; And I did ſo much, God bleſſing my endeavours, that at length he recovered.



A Plane leaden pipe for to carry forth the Sanies gathered under the ſcull.



A little ſyring fit to make injections withall.

A hiſtory.

The like chance and fortune befell Monſieur *de Pienne* at the ſeige of *Mets*. For he as hee fought at the breach of the wall, had the bone of his Temples broken with a ſtone ſtrucke out of the adjacent wall, by a peece of Ordinance ſhot from the Emperours campe; he preſently fell downe with the blow, and caſt blood out of his mouth, noſe and eares, with much vomiting, and remained dumbe & as it were ſenceleſſe almoſt foureteene dayes, ſo that he knew none of the by-ſtanders. He had often palpitations, and convulſiue twitchings, and his face was ſwollne. His forehead bone was Trepaned at the ſide of the Temporall muſcle by the hand of *Peter Aubert* the Kings Chirurgion: and although on the 25. day, ſoft fleſh, endued with exquiſite ſenſe grew out of the hole made with the Trepan, whoſe growth could not bee hindred by Cathæreticke pouders, yet at the length he recovered.

The Ancients called this kinde of growing fleſh a *Fungus* [*i.* a Muſhrome] for that it is ſoft, and growes with a ſmall roote and broad top like a muſhrome: but it encreaſes and decreaſes, according to the plenty of the flowing matter, and induſtry of the Chirurgion hindring by art the growth thereof.

This fleſh ſtinkes exceedingly, they commonly call it *Ficus ſancti Piacrÿ* [*i.* the

figge

The generation of a *Fungus*.

Figge of S. *Fiacrye.*] This diſeaſe commonly hath its originall after this manner. Even as in the bodies of Trees from the excrements of nouriſhment, a certaine halfe putrid groſſe and viſcous humor ſweats through the barke, and gathered together by little and little growes into a Muſhrom, ſo blood melancholly both in temper and conſiſtence, ſprings from the broken veſſells of the ſcull and *Craſſa Meninx*, which alſo is ſent ſometimes by nature for the neceſſary repairing of the fleſh in theſe parts, whereupon a certaine *fungus* breedes, which in *Galens* opinion, ſavors or partakes of the nature and condition of the parts to which it growes; though in generall it bee of the nature of maligne warts, or excreſcences. But for to take away ſuch *Fungi*, you muſt apply medicines which have a ſpecifick faculty to waſte ſuperfluous fleſh; ſuch are theſe which ſtrongly dry, and gently waſte and eate, ſuch as this which followes.

℞ *Sabinæ* ʒij. *ocræ* ʒj. *pulveriſentur ſimul, aſpergatur caro excreſcens.* or elſe. ℞ *Hermodactylorum combuſtorum* ʒß. make a pouder for the ſame uſe. But if ſo be that this fungous fleſh come to ſuch growth, (as it often happens,) as to equall the bigneſſe of an egge, it muſt be tyed and ſtraite twitched, cloſe to the roote with a ſilken thred; and when it ſhall fall away by reaſon of this binding, the place muſt be ſtrewed with the forementioned powders, for ſo it will be more certainely cured, than with more acride cathæretickes.

CHAP. XX.

Of the corruption and Caries, *or rottenneſſe of the bones of the Head.*

Why when the ſcull is broken the bones ſometimes become foule or rotten.

THere ſometimes followes a corruption and Sphacell of the fractured bones of the ſcull upon wounds of the head; which happens either becauſe they are touched by the ayre, which they are not ſenſible of; or for that the *Sanies* putrifying and detained under them, hath infected them with like putrifaction; or by the cure unskillfully handled, they becoming more moyſt, by the raſh application of ſuppurating and oyly medicines and ſo undergoing an unnaturall change of their proper complexion and native temper, as we ſhall ſhew more at large when we ſhall treate of the reaſon of the *Caries* in the *Lues venerea.* We ſhall know this unnaturall change and corruption, partly by ſight, that is, when from white they become to be yellowiſh, livide and black; partly alſo by putting downe a probe; when as it meets with nothing ſmooth and ſlippery, but feeles rough in many places, and beſides alſo when it enters and eaſily penetrates with a ſmall thruſting downe into their ſubſtance, as if it were fungous. Yet this laſt ſigne may often deceive you, for I have diverſe times obſerved rotten bones, which being bare had long ſuffered the injury of the ayre, to become ſo hard that a Trepan would ſcarſe peirce them; for it is putride humidity which makes the bones ſoft and fungous; but the ayre by drying them exhauſts this humiditie and laſtly dryes it, whence followes ſuch contumacious hardneſſe. This ſigne will bee farre more certaine, if the fleſh which is growne upon the bone be more ſoft than is fit, looſe and have little or no ſenſe or feeling. You may correct and amend this corruption of the bone with cauteries aswell actuall, as potentiall, or with the powders of Aloes, Gentian, *Ariſtolochia*, centaury, *cortex pini*, as,

The ſignes of fouleneſſe of the bone.

Corrupt bones are ſometimes hard.

℞ *radic. Ireos, Flor. ariſtolochiæ an.* ʒj. *centaur.* ʒij. *corticis pini* ʒß. *Miſce & fiat pulvis ſubtiliſſimus oſi inſpergendus.* But if it be much corupted, it muſt bee ſcraped forth with your *Scalpra.* And you muſt expect the falling or ſcailing of the corrupt bone from the ſound, and not forcibly procure it; for otherwiſe the ſound bone, which lyes under it, being as yet covered with no fleſh growing over it, would be corrupted by the appulſe, or touch of the ayre. Yet you ſhall by little and little gently move and ſhake rotten bones with your probe, that ſo they may more eaſily ſcaile and with leſſe trouble to nature. But note by the way, that the ſcailing of the bone which hath environed the Trepan, is commonly performed in the ſpace of fortie or fifty dayes. So long alſo will that cauſed by the unuſuall appulſe or touch of the aire, or application of a Cautery, or the aſperſion of Cephalicke pouders; beſides alſo in the ſame number of dayes broken bones may be united and joyned together by a *Callus*, which is to them as a ſcarre, yet ſometimes ſooner, ſomewhiles latter according to the variety of the ages, tempers and habits of divers men.

The benefit of a valnerary potion.

But if the *Caries* or *Rottennes* can neither by theſe fore mentioned remedies be orecome and amended, neither the looſed continuity agglutinated nor united, you muſt give the patient a vulnerary potion, for hence I have found happy ſucceſſe in many. But ſometimes not onely a certaine portion of the bone, is taken with a *Caries*, but alſo the whole is often ſeazed upon with ſphacell, and all falls out. For in *Hippocrates* opinion, *Lib. de vulneribus capitis*, the bone of the ſcull being broken falls from the ſound more or leſſe, according to the violence of the blow; which alſo is confirmed by experience.

A Hiſtory.

For which purpoſe I thinke good in this place to recite a Hiſtory, whereof I was an eye witneſſe, whilſt I ſerved as Chirurgion in *Piemont* under the Marſhal *de Montejan* (who was the Kings Leiſtenant there.) It happened that a Lackey of Monſieur *de Goulaines* came to me to be cured; he had the *Bregma* bone of the left ſide broken with a ſword, neither yet did the fracture come to the ſecond Table; a few dayes after his recovery the bone being agglutinated and united, it came to paſſe that a company of *Gaſcoine* ſouldiers his countreimen came to *Turin*, with whom one morning he eate plentifully Tripe fryed with Onions and ſpices, & drunke a great quantitie of ſtrong wine. Whereupon he preſently fell into a continuall Feaver, and loſt his ſpeech and underſtanding; his head ſwelled, his eyes looked red and fiery and as though they would have ſtarted out of his head. Which things being conſidered, I let him blood, having firſt (by the Phyſitions advice) given him a Gliſter, and applyed to his head ſuch things as were fit, and alſo I laboured with Frictions and Ligatures of the extreame parts to draw the humors downewards; yet for all this the part of the head which was formerly affected begun to impoſtumate; which being opened, there came forth a great quantity of matter, and at the length the muſculous skinne and *Pericranium* ſincking downe, both the Tables of the ſcull became putrified and rotten, as you might know by their blackneſſe and ſtench. Now to take away this coruption, I applyed at certaine times actuall cauteries, both to amend the corruption and ſeparate that which was altered: but marke, after ſome months ſpace, a great number of wormes came forth by the holes of the rotten bones from underneath the putrified ſcull; which moved me to haſten the ſeparation and falling away of the putrid bones. Which being done, upon the very *Craſſa Meninx*, which is more ſtrange, in that place which nature had covered with fleſh, I obſerved three cavities of the largeneſſe of ones thumbe filled with wormes about the bigneſſe of a points tagge, with blacke heads, diverſly wrapped amongſt themſelves. The bone which nature ſeparated was of the bigneſſe of the palme of ones hand, ſo that it was ſtrange that ſo large a portion of the ſcull ſhould bee caſt off by nature, and yet the patient not dye thereof; for he recovered yet beyond all mens expectation, but after the agglutination of the wound the ſcarre remained very hollow according to the decree of *Hippocrates*. For fleſh doth not eaſily grow upon a *Callus*, becauſe it is a thing ſtrange and ſuppoſititious by nature; beſides, as a ſcarre is a thing more denſe than the skinne, ſo is a *Callus* than the bone, ſo that through the more compact ſubſtance thereof, the blood can neither freely, nor plentifully ſweat through for matter to regenerate fleſh. Hence it is, that whereſoever any portion of the ſcull is wanting, you may there by putting too of your hand perceive and feele the beating of the Braine, wherefore the ſcull muſt needes bee much weaker in that place. Now to helpe this infirmity, I wiſhed this Lackey to weare a Cap made of thicke leather, ſo more eaſily to withſtand externall injuries, and verily thereby he grew much better.

A great falling away of a corrupt bone.

Aph. 45. Sect. 6

The covetous craft of impoſtors.

Now I thinke good in this place to lay open the deceite and craft of ſome Impoſtors falſly ſtiling themſelves Chirurgions, who when they are called to cure wounds of the head, wherein any part of the ſcull is loſt, perſwade the patient and his friends, that they muſt put a plate of gold in the place of the ſcull which is wanting. Wherefore they hammer it, in the preſence of the patient, and turne it divers wayes and apply it to the part, the better to fit it; but preſently after they ſliely convey it into their purſes, and ſo leave the patient thus coſened. Others bragge that they are able to put the dryed rinde of a gourd into the place of the loſt bone, and faſten it on to defend the part; and thus they groſſely abuſe thoſe which are ignorant in the Art. For this is ſo farre from being done that nature will not ſuffer nor endure ſo much as an haire, or any other ſmall body to be ſhut up in a wound when it is cicatrized; neither is the reaſon alike of a leaden bullet which ſhot into the body lyes there for many yeeres without any harme to the patient; for although lead have a certaine familiarity with mans body, yet is it at length (unleſſe the denſity of the oppoſed fleſh, ligament, tendon, or ſome other ſuch like ſubſtance hinder) thruſt forth by nature impatient of all ſtrange bodies. And thus much of the rottenneſſe and corruption of fractured bones; now muſt we ſpeake of the diſcommodities which befall the *Meninges* by wounds whereby the ſcull is broken.

Chap. XXI.

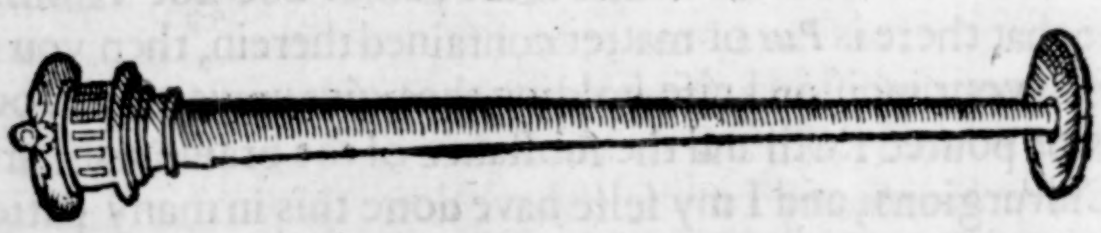
Of the diſcommodities which happen to the Craſſa Meninx *by fractures of the ſcull.*

Many diſcommodities chieſely happen to the *Craſſa Meninx* by a fracture of the ſcull and raſh Trepaning thereof; for it ſometimes chances to bee cut and torne. Agglutination is a remedy for this diſeaſe, which *Hippocrates* wiſhes to be procured with the juice of *Nepeta* [that is, of that calamint, which ſmells like Penny-royall] mixed with barly floure. In ſteed whereof this following powder having the like faculty may take place.

Remedies for the lacerated *Meninx*.

℞ *Colophon.* ℥iij. *Myrrha, aloes, maſtiches, ſanguinis Dracon. an.* ʒj. *croci, ſarcocollæ an.* ʒß. *miſce & fiat pulvis ſubtilis.* But to purge the blood and matter which is gathered and lyes betweene the *Craſſa Meninx* and ſcull, you ſhall put in a Tent made of a ragge twined up ſome foure or five double, and ſteeped in ſyrupe of Roſes or wormewood and a little *aqua vitæ*; for thus you ſhall preſſe downe both the *Craſſa Meninx*, leſt lifted up by the accuſtomed and native pulſation of the braine, it ſhould be hurt by the edges of the ſcull yet rough by reaſon of the ſharpe ſplinters of the bone lately Trepaned, and give freer paſſage forth for the matter there contained. But as oft as you ſhall dreſſe the patient, you ſhall renue the forementioned Tent, untill all the matter be purged forth. And ſo often alſo you ſhall preſſe downe with the following inſtrument the *Dura Mater*, and bid the patient to ſtrive to put forth his breath, ſtopping his mouth and noſe, that ſo the matter may more eaſily be evacuated. This Inſtument wherewith you ſhall hold downe the *Dura Mater*, muſt have the end round, poliſht and ſmooth as it is here expreſt.

A fit Inſtrument to preſſe and hold downe the Dura Mater, *ſo to make way for the paſſage forth of the* Sanies *or* Matter.



And let there be layd upon the *Dura Mater* ſtrewed over with the formerly mentioned powder, a ſpunge moyſtened and wrung forth of a drying decoction made of aromaticke and cephalicke things, ſuch as this which followes.

℞, *Fol. ſalviæ, majoran. betonicæ, roſar. rub. abſinth. Myrtil. florum chamæm. melil. ſtæchad. utriuſque an. M.* iij. ß. *rad. cyperi, calam. aromat. ireos, caryophyllatæ; angelicæ, an.* ʒß. *bulliant omnia ſecundum artem cum aqua fabrorum & vino rubro, fiat decoctio ad uſum dictum.* And in ſtead hereof you may uſe claret with a little *aqua vitæ*, that ſo the conteyned matter may bee evacuated and dryed up. A ſpunge is fitter for this purpoſe to draw than a linnen ragge or any other thing, both becauſe it is good of its ſelfe to draw forth the humidity, as alſo for that by its ſoftneſſe it

A ſpunge fit to foment withall.

Lib. de Vuln. cap.

yeelds to the pulſation of the Braine. Then apply to the wound and all the adjoyning parts, an emplaſter of *Diacalcitheos* diſſolved with vinegar, or wine, or oyle of Roſes, that ſo the plaſter may be the more cold and ſoft. For in *Hippocrates* opinion, nothing which is any thing heavie or hard muſt be applyed to wounds of the head, neither muſt it be bound with too ſtraite, or hard a ligature, for feare of paine and inflammation.

Lib. de faſceijs.

The diſcommodities of too ſtraite binding of the head.

For *Galen* tells (as he had it from *Mantias*) that a certaine man loſt his eyes by inflammation and impoſtumation ariſing, for that an Apothecarie had uſed too ſtraite a ligature to his head and face; for this ſtraite ligature ſo preſſed the ſutures, that the fuliginous vapoures, which uſed to paſſe through them and the pores of the ſcull, were ſtopped from paſſing that way; beſides, the beating of the Arteries was intercepted and hindred; by which meanes the paine and inflammation ſo encreaſed, that his eyes were rent and broke in ſunder and fell forth of their orbe.

What cloathes we muſt uſe.

How the patient muſt lye in his bed.

Wherefore *Hippocrates* rightly commends an indifferent ligature, alſo hee fitly wiſheth us to let the emplaiſters bee ſoft which are applyed to the head, as alſo the cloathes wherewith it is bound up, to bee of ſoft and thinne linnen, or of Cotton, or wooll. When the patient is in dreſſing, if there come much matter out of the wound, you ſhall wiſh him if hee can, to lye upon the wound, and now and then by fits to ſtrive to breathe, ſtopping his mouth and noſe, that ſo the braine lifted and ſwollne upwards, the matter may bee the more readily caſt forth; otherwiſe ſuffer him to lye ſo in his bed, as he ſhall beſt like of, and ſhal be leaſt troubleſome to him.

You may with good ſucceſſe put upon the *Craſſa Meninx* oyle of Turpentine with a ſmall quantity of *aqua vitæ* and a little Aloes and Saffron finely powdred, to clenſe or draw forth the *Sanies*, or matter. Or elſe,

℞. *Mellis roſar.* ℥ij. *farinæ hord. pulver. aloes, Maſtich. & Ireos Florent. an.* ʒß. *aqua vitæ parum*; let them be incorporated together and make a deterſive medicine for the foreſayd uſe.

Paræus lib. 6. cap. 90.

Sometimes alſo the *Craſſa Meninx* is inflamed after Trepaning, and ſwolne by a *Phlegmon*, that impatient of its place, it riſes out of the hole made by the Trepan, and lifts its ſelfe much higher than the ſcull, whence greevous ſymptomes follow. Wherefore to prevent death, of which then wee ought to bee afraid, wee muſt inlarge the former hole with our cutting mullets, that the matter contained under the ſcull, by reaſon of whoſe quantity the membraine ſwells, may the more freely breathe and paſſe forth; and then we muſt goe about by the preſcript of the Phiſition to let him bleed againe, to purge and diet him. The inflammation ſhall bee reſiſted by the application of contrary remedies, as this following fomentation.

Remedies for the inflammation of the *Craſſa Meninx.*

℞ *Sem. lini, althææ, fœn. pſillij, roſ. rub. an.* ℥j. *ſolani, plantag. an. M.* j. *bulliant in aqua tepida communi, ex qua fiat fotus.* Anodyne and repelling medicines ſhall bee dropped into his eares; when it is exceedingly ſwolne, that the tumor may ſubſide, you ſhall caſt upon it the meale or floure of lentills, or vine leaves beaten with Gooſe greaſe. With all which remedies if the tumor doe not vaniſh, and withall you conjecture that there is *Pus* or matter contained therein, then you muſt open the *Dura Mater* with your inciſion knife, holding the point upwards and outwards, for ſo the matter will be poured forth and the ſubſtance of the braine not hurt nor touched. Many other Chirurgions, and I my ſelfe have done this in many patients with various ſucceſſe.

How we muſt open the *Craſſa Meninx* when it is impoſtumate

For it is better in deſperate cauſes to try a doubtfull remedy than none at all; alſo it oft times happens whither by the violence of the contuſion and blow, or concretion or clotting of the blood which is ſhed, or the appulſe of the cold ayre, or the raſh application of medicines agreeing neither in temper nor complexion with the *Craſſa Meninx*, or alſo by the putrifaction of the proper ſubſtance, that the *Dura Mater* it ſelfe becomes blacke. Of which ſymptome the Chirurgion muſt have a great and ſpeciall care.

The cauſes and remedies of the blackeneſſe of the *Dura Mater.*

Remedies for contuſion.

Therefore that thou mayſt take away the blackneſſe, cauſed by the vehemencie of the contuſion, you ſhall put upon it oyle of egges with a little *Aqua Vitæ*, and a ſmall quantity of Saffron and Orris roots in fine powder; you ſhall alſo make a fomentation of diſcuſſing and aromaticke things boiled in water and wine; and *Vigoes* Cerat formerly deſcribed ſhall bee applyed. But if the harme come from congealed blood, you ſhall withſtand it with this following remedie.

For congealed blood.

℞ *Aquæ Vitæ* ℥ij. *granor. tinctorum in tenuem pulverem tritorum* ʒiiß. *croci*, ℈I. *Mellis roſat.* ʒjß. *ſarcocol.* ʒiij. *Leviter & ſimul bulliant omnia, & de colatura infundatur, quouſque nigrities fuerit obliterata.* If this affect come by the touch of the ayre, it ſhall bee helped with this following remedie.

For the hurt received by the ayre.

℞ *Tereb. ven.* ℥iij, *Mellis roſ.* ℥ij. *Vitellum ovi unum, farin. hordei* ʒiij. *croci* ℈j. *ſarcocol.* ʒij. *aq. vitæ* ʒij. *Incorporentur ſimul, & bulliant paululum.* This remedy ſhall be uſed untill the blackneſſe be taken away, and the membrane recover its priſtine colour.

What medicines make the *Craſſa Meninx* blacke.

But if this affect proceedes from the raſh uſe of medicines, it muſt bee helped by application of things contrary. For thus the offence cauſed by the too long uſe of moyſt and oyly medicines, may be amended by uſing catagmaticke & cephalick powders; but the heate and biting of acride medicines, ſhal be mitigated by the contrary uſe of gentle things; for both humide and acride things ſomewhat long uſed make the part looke blacke; that truely by generating and heaping up filth, but this by the burning and hardening heate. But when ſuch blackneſſe proceedes from putrifaction, *Iohn de Vigo* commends the following remedie.

Medicines against the putrefaction of the *Meninx*.

℞ *aquæ vitæ* ℥ij *mellis roſat.* ℥ß. But if the affect be growne ſo contumacious that it will not yeeld to this gentle remedy, then this following will bee convenient.

℞ *Aq vitæ* ℥iij. *mellis roſ.* ℥j *pulver. Mercur.* ʒij. *unica ebullitione bulliant ſimul ad uſum dictum.* Or ℞ *aquæ vit.* ℥iß. *ſyrup. abſinth & mellis roſat. an.* ʒij. *unguenti ægyptiaci* ʒijß. *ſarcocol. myrrhæ, aloes, an.* ʒj. *vini albi boni & odoriferi,* ℥j. *bulliant leviter omnia ſimul, colentur ad uſum dictum.* But if the force of the putrefaction be ſo ſtubborne, that it will not yeeld to theſe remedies, it will be helped with *Ægyptiacum* (made with plantaine water in ſteed of Vinegar) uſed alone by its ſelfe, or with the powder of Mercury alone by it ſelfe, or mixt with the powder of Alome. Neither muſt we bee afraid to uſe ſuch remedies eſpecially in this extreame diſeaſe of the *Dura Mater*; for in *Galens* opinion the *Craſſa Meninx* after the ſcull is Trepaned delights in medicines that are acride, that is, ſtrong and very drying, eſpecially if it have no *Phlegmon*; and this for two reaſons; the firſt is, for that hard and dry bodies, ſuch as membranous bodies are, be not eaſily affected unleſſe by ſtrong medicines; the other is, which muſt be the chiefe and prime care of the Phyſition, to preſerve and reſtore the native temper of the part by things of like temper to it. But if the auditory paſſage not onely reaching to the hard membranes of the Braine, but alſo touching the Nerve which deſcends into it from the braine, ſuffer moſt vehement medicines, though it be placed ſo neere; certainely the *Craſſa Meninx* will endure them farre more eaſily and without harme.

Why the *Craſſa Meninx* eaſily endures acrid medicines.

But if by theſe meanes the putrifaction be not reſtrained, and the tumor bee encreaſed ſo much, that the *Dura Mater* riſing farre above the ſcull, remaines unmoveable, blacke and dry, and the patients eyes looke fiery, ſtand forth of his head and rowle up and downe with unquietneſſe and a phrenſie, and theſe ſo many ill accidents be not fugitive, but conſtant; then know that death is at hand, both by reaſon of the corruption of the gangræne of a noble part, as alſo by extinction of the natiue heate.

Signes of death at hand.

CHAP. XXII.

Of the cure of the Braine being ſhaken, or moved.

What the concuſſion of the braine is.

WEe have formerly declared the cauſes, ſignes and ſymptomes of the concuſſion, or ſhaking of the Braine, without any wound of the muſculous skinne, or fracture of the bone; wherefore for the preſent I will treate of the cure.

Therefore in this caſe, for that there is feare that ſome veſſell is broken under the ſcull, it is fit preſently to open the cephalicke veine. And let bloud bee plentifully taken according to the ſtrength of the patient, as alſo reſpectively to the diſeaſe both which is preſent, and like to enſue, taking the advice of a Phyſition.

Then when you have ſhaven away the haire, you ſhall apply to the whole head and often renue the forementioned cataplaſme, *Ex farinis, oleo roſaceo, oxymelite,* and other like cold and moyſt repelling medicines. But you muſt eſchew dry, and too aſtringent medicines muſt bee ſhunned, ſuch as are *Vnguentum de bolo* and the like; for they obſtruct too vehemently, and hinder the paſſage forth of the vapours both by the ſutures and the hidden pores of the ſcull. Wherefore they doe not onely not hinder the inflammation, but fetch it when it is abſent, or encreaſe it, when preſent. The belly ſhall bee looſed with a gliſter, and the acride vapours drawne from the head; for which purpoſe alſo it will bee good, to make frictions from above downewards, to make ſtraight ligatures on the extreame parts, to faſten large cupping-glaſſes with much flame to the ſhoulders and the originall of the ſpinall marrow, that ſo the revulſion of the blood running violently upwards to the braine, and ready to cauſe a phlegmon, may be the greater. The following day it will be convenient to open the *Vena Puppis,* which is ſeated upon the Lambdall ſuture, by reaſon of the community it hath with the veines of the braine, and ſhutting the mouth and noſe to ſtrive powerfully to breathe. For thus the membranes ſwell up, and the blood gathered betweene them and the ſcull is thruſt forth; but not that which is ſhut up in the braine and membranes, of which if there be any great quantity, the caſe is almoſt deſperate, unleſſe nature aſſiſted with ſtronger force, caſt it forth turned into *Pus.* But alſo after a few dayes the *vena frontis* or forehead veine may be opened, as alſo the Temporall Arteries and Veines under the tongue, that the conjunct matter may bee drawne forth by ſo many open paſſages.

The opening of the *Vena Puppis.*

In the meane ſpare the Patient muſt keepe a ſpare diet, and abſtaine from wine, eſpecially untill the fourteenth day, for that untill that time the fearefull ſymptomes commonly reigne. But repelling medicines muſt be uſed untill the fourteenth day be paſt, then we muſt come to diſcuſſing medicines, beginning with the more milde, ſuch as is this following decoction.

A diſcuſſing fomentation.

℞. *rad. Alth.* ℥vj. *ireos, cyperi, calami arom. an.* ʒij. *fol. ſalviæ, Majoran, betonic. flor. chamæm. melil. roſ. rub. ſtæchad. an. M.* ß. *ſalis com.* ℥iij. *bulliant omnia ſimul ſecundum artem cum vino rub. & aqua fabrorum, fiat decoctio.* Let the head bee waſhed therewith twiſe a day with a ſpunge. But yet when you doe this, ſee that the head bee not to much heated by ſuch a fomentation, or any ſuch like thing, for feare of paine and inflammation.

A caution in fomenting the head.

Then you ſhall apply the cerate of *Vigo* which hath power to diſcuſſe indifferently, to dry, and draw forth the humors which are under the ſcull, and by its aromaticke force and power to confirme and ſtrengthen the braine; it is thus deſcribed.

A deſcription of *Vigoes* Cerate.

℞. *Furfuris bene triturati* ℥iij. *farin. lentium* ℥ij. *roſ. myrtillor. foliorum & granorum ejus, an.* ℥j. *calam. aromat.* ℥iß. *chamæmel. melil. an. M.* ß. *nuces cupreſſi num.* vj. *olei roſacei, & chamæm. an.* ℥iij. *ceræ albæ* ℥iiß, *thuris, maſtichis, an.* ʒiij. *myrrhæ* ʒij. *In pulverem quæ redigi debent redactis, & liquefactis oleis cum cera,* *omnia miſceantur ſimul, & fiat mixtura, quæ erit inter formam emplaſtri & ceroti.*

A Hiſtory.

Vigo ſaith, that one of the Duke of *Vrbins* Gentlemen found the virtue hereof to his great good. Hee fell from his horſe with his head downewards upon hard Marble, he lay as if hee had beene dead, the blood guſht out of his noſe, mouth and eares, and all his face was ſwollen and of a livide colour; hee remained dumbe twenty dayes, taking no meat but diſſolved gellies, and Chicken, and Capon broths with ſugar; yet he recovered, but loſt his memorie, and faultered in his ſpeech all his life after. To which purpoſe is that Aphoriſme of *Hippocrates*; Thoſe which have their Braine ſhaken by what cauſe ſoever, muſt of neceſſity become dumbe; yea alſo, as *Galen* obſerves in his commentary, looſe both their ſenſe and motion. That Cerat is not of ſmall efficacie, but of marvellous and admirable force, which could hinder the generating of an abſceſſe, which was incident to the braine by reaſon of the fall.

Aph.58.ſect.7.

That there may be an abſceſſe in the braine.

Yet there be many men ſo farre from yeelding to reaſon, that they ſtifly denie, that any impoſtumation can be in the braine, and augmenting this errour with another, they deny that any who have a portion of the braine cut off can recover, or riſe againe; but the authority of ancient writers and experience doe abundantly refell the vanitie of the reaſons whereon they relye. Now for the firſt in the opinion of *Hippocrates*; If thoſe which have great paine in their heads have either *pus*, water or blood flowing from their Noſe, mouth or eares, it helpes their diſeaſe.

Aph.10.ſect.6.

Gal.lib.de inæqual. intemp. Rhaſ.cap.4. continent. Avicen.cap.de exit. fen.3.lib.4.cap.20.

But *Galen*, *Rhaſis* and *Avicen* affirme that *Sanies* generated in the braine diſburdens its ſelfe by the noſe, mouth or eares; and I my ſelfe have obſerved many who had the like happen to them.

A Hiſtory.

I was told by *Prothais Coulen* Chirurgion to Monſieur *de Langey*, that he ſaw a certaine young man in the towne of *Mans*, who often uſed to ring a great bell; hee once hanging in ſport upon the rope, was ſnatch up therewith and fell with his head full upon the pavement: he lay mute, was deprived of his ſenſes and underſtanding, and was beſides hard bound in his belly. Wherefore preſently a feaver and *delirium* with other horrid ſymptomes aſſayled him, for he was not Trepaned becauſe there appeared no ſigne of fracture in the ſcull: on the ſeaventh day hee fell into a great ſweate with often ſneeſing, by the violence whereof a great quantity of matter and *Pus* flowed forth of his eares, mouth and noſe, then hee was eaſed of all his ſymptomes, and recovered his health.

Lib.8.de. uſu part. & com. ad aph.18. ſect.6.

Now for the ſecond, *Galen* affirmes that he ſaw a Boy in *Smirna* of *Ionia* that recovered of a great wound of the braine, but yet ſuch an one as did not penetrate to any of the ventricles.

But *Guido* of *Cauliac* ſaith, he ſaw one which lived and recovered after a great portion of the braine fell out by reaſon of a wound received on the hind part of his head.

In the yeare of our Lord 1538, while I was Chirurgion to the Marſhall of *Monteſjan* at *Turin*, I had one of his Pages in cure, who playing at quoites received a wound with a ſtone upon the right *Bregma* with a fracture, and ſo great an effracture of the bone, that the quantity of halfe a haſell Nut of the braine came forth thereat. Which I obſerving, preſently pronounced the wound to bee deadly; a Phyſition which was preſent contradicted my opinion, affirming that ſubſtance was no portion of the braine, but a certaine fatty body. But I with reaſon and experience in preſence of a great company of Gentlemen, convinced the pertinacie of the Man; with reaſon; for that fat cannot be generated under the ſcull, for although the parts there contained be cold, yet becauſe they are heated by the abundance of the moſt hot and ſubtle animall ſpirits, and the heate of vapours riſing thither from all the body, they doe not ſuffer fat to concreate about them. But with experience, for that in the diſſecting of dead bodies, there was never any fat obſerved there; beſides alſo fat will ſwimme on the top of water; but this ſubſtance as marrowie, caſt into the water preſently ſunke to the bottome.

Why fat cannot be generated under the ſcull.

Signes of a fatty ſubſtance.

Laſtly, fat put to the fire becomes liquide and melts; but this ſubſtance being layd upon a hot Iron, became dry, ſhrunke up and contracted it ſelfe like a peece of leather; but diſſolved not at all. Wherefore all thoſe which were preſent cryed out, that my judgement was right of that ſubſtance that came forth of the ſcull. Yet though it was cut away, Page recovered perfectly, but that he continued deafe all his life after.

CHAP. XXIII.

Of the wounds of the face.

Why we treat in particular of wounds of the face.

HAving treated of the wounds of the head by their cauſes, ſignes and cure, it followes that we now ſpeake of the wounds of the face, if but for this, that when they are careleſſely handled, they leave deformed ſcarres in the moſt ſpecious and beautifull part of the body. The cauſes are the ſame which are incident to the ſcull, that is, externall. But this may bee added to the kindes and differences of the wounds, that the life may be out of danger though any one whole part of the face, (as the eare, eye, noſe, lippe) may bee cut away by a wound, but not ſo in the head or ſcull. Wherefore beginning at the wounds of the eye browes, wee will proſecute in order the wounds of the other parts of the face.

A thing to be obſerved in wounds of the eyebrows.

This is chiefely to bee obſerved in wounds of the eye-browes, that they are oft times cut ſo overtwhart, that the muſcles, and fleſhy pannicle which moove and lift them up, are wholy rent and torne. In which caſe the eye liddes cannot be opened, and the eyes remaine covered, and as it were ſhut up in the caſes of their lids; ſo that even after the agglutination of the wound, if the patient would looke upon any thing, he is forc'd to hold up the eye-lids with his hand; with which infirmity I have ſeene many troubled, yet oft times not ſo much by the violence of the wound, as by the unskilfulneſſe of the Chirurgion who cured them; that is, by the negligent application of boulſters, an unfit ligature and more unfit ſuture. In this caſe the skilfull Chirurgion which is called to the patient ſhall cut off as much of the skinne and fleſhy pannicle as ſhall ſerve the eyelids, that ſo they may by their owne ſtrength holde and keepe open, without the helpe of the hand: then he ſhall ſow the wound as is fit, with ſuch a ſtitch as the Furriers, and Glovers uſe; and then he ſhall poure thereon ſome of the balſome of my deſcription, and ſhall lay ſuch a medicine to the neighbouring parts.

R *Olei roſar.* ℥ß. *album. ovor. nu.* ij. *boli armeni, ſanguinis Dracon. Maſtich. an* ʒj. *agitentur ſimul, fiat medicamentum.* Then let the part be bound with a fitting ligature. Afterwards you ſhall uſe *Emplaſt. de gratia Dei, Empl. de Betonica, Diacalcitheos,* or ſome other like, untill the wound be cicatrized. But ſuch like and all other wounds of the face may be eaſily healed, unleſſe they either bee aſſociated with ſome maligne ſymptomes, or the patient body be repleate with ill humors.

Lagophthalmia **is a quite contrary to the falling downe of the eye-lids.**

There ſometimes happens a quite contrary accident in wounds of the eye-browes, that is, when the eye-lids ſtand ſo up that the patient is forc'd to ſleepe with his eyes open, wherefore thoſe which are ſo affected are called by the Greeks *Lagophthalmi.* The cauſe of this affect is often internall, as a carbuncle or other kinde of abſceſſe, as a blow or ſtroake. It ſhall be cured by a crooked or ſemicircular inciſion made above the eye-liddes, but ſo that the extreames of the ſemicircle bend downewards, that they may be preſſed downe and ioyned as much as is needefull to amend the ſtifneſſe of the eye-lidde. But you muſt not violate the griſtle with your Inſtrument, for ſo they could no more be lifted up; the reſidue of the cure muſt bee performed as is fit.

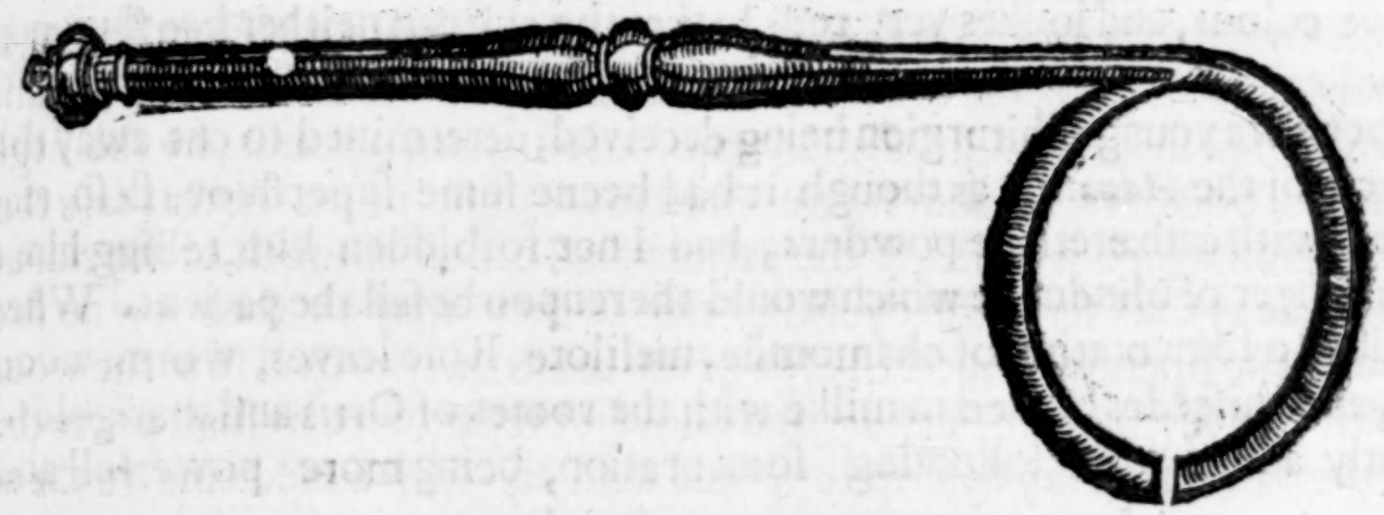
CAHP.

CHAP. XXIIII.

Of the wounds of the eyes.

WOunds of the eyes are made by the violence of things prickings cutting, bruiſing, or otherwiſe looſing the continuity. But the cure muſt alwayes be varied according to the variety of the cauſes and differences. The firſt head of the cure is, that if any ſtrange and heterogeneous body ſhall be fallen into the eyes, let it be taken forth as ſoone as you can, lifting and turning up the eyelid with the end of a *ſpatula*. But if you cannot diſcerne this moate or little body, then put three or foure ſeedes of *Clary*, or *Oculus Chriſti* into the pained eye. For theſe ſeedes are thought to have a faculty to clenſe the eyes and take out the moats, which are not faſtned deepe in, nor doe too ſtubbornely adhere to the membranes. For in this caſe, you ſhall uſe this following inſtrument, for heerewith wee open the eyelids the further, putting it betweene them and the eye, and alſo keepe the eye ſteddy by gently preſſing it, that ſo with our mullets wee may pull out the extraneous body; this is the figure of ſuch an Inſtrument.

The delineation of a Speculum oculi, fit to dilate and hold aſunder the eyelids, and keepe the eye ſteddy; it is ſo made, that it may be dilated and contracted according to the greatneſſe of the eyes.



A repercuſſive to be put into the eye.

All ſtrange bodies taken out, let this medicine be put into the eye. Take the ſtraines of a dozen egges, let them be beaten in a lead Mortar with a little Roſe water, and ſo put into the eye; but let this repercuſſive be layd upon the eye and the neighbouing parts. ℞. *albumin. ovor. nu.* iiij. *pulver. aluminis rochæ combuſti* ʒij. *ſanguinis Draconis* ʒj. *aquæ roſar. & plantag. an.* ℥ij. *agitentur ſimul*, make a repercuſſive, which you may frequently uſe. Or elſe apply cheeſe curds well wrung, mixed with Roſewater, the white of an Egge, and as much *acacia* as ſhall ſuffice. This which followeth doth more powerfully ſtay the flowing humor. ℞. *gum arab & tragac. an.* ʒij *pſilij, cydon. ſemin. portul. plant. ſumach. an.* ʒij *fiat mucag. cum aqua plantag. (olan. & roſar. concinnetur collyrium*, of which you may drop ſome both within and about the eye.

Divers repercuſſives to be applyed to the eye.

Things actually cold are hurtfull to the eyes.

But note, that all ſuch remedies muſt be applyed warme, both that they may the better penetrate by their moderate heate, as alſo for that all actuall cold things are hurtfull to the eyes and ſight, becauſe they dull the ſight by incruſtating the viſive ſpirits. For I have knowne many who have become dull of ſight by the frequent uſing of medicines actually cold to the eyes.

I have on the contrary ſeene not a few, who have recovered with the fit uſe of ſuch like medicines, who have had any part of their eye (ſo it were not the *pupilla* or Apple of the eye) ſo pricked with a needle or bodkin, that much of the watriſh humour ran forth thereat.

Anodyne medicines for the eyes.

The milke of a woman which ſuckles a girle (for that is reputed the cooler) mitigates paine and clenſes, if it bee milked out of the Dug into the eye; to which purpoſe alſo the blood of Turtles, Pidgeons or Chickens much conduces, being dropt into the eye by opening a veine under their wings. Alſo this following cataplaſme aſſwageth paine and inflammation, and hinders defluxion, being applyed to the eye and the adjacent parts. ℞ *Carnis pomorum ſub cinere calido decoctorum* ℥v. *vitellos ovorum num.* iij, *caſsiæ fiſtulæ recenter extractæ* ℥ß, *mucaginis pſilij, altheæ & cydon. an.* ℥j. *farin. hordei parum, incorporentur omnia ſimul, fiat cataplaſma.*

Narcotickes.

Alſo ſheepes lungs boyled in milke and applyed warme, and changed as they grow cold, are good to aſwage paine. But if the too violent heate and paine ſhall not yeeld to ſuch medicines, but require more vehement, then *Foliorum Hyoſcyami, m.* j. *ſub cineribus coquatur, atque in mortario cum mucagine ſeminis pſilij, & cydonior, extract. in aquis ſolani & plantag. piſtetur:* then let this medicine be wrapped in a linnen cloath and applyed to the eyes and temples. The mucilages of *Pſilium,* or Flea-wort, and Quince ſeedes extracted in a decoction of Poppy heads and mixed with a little *Opium* and Roſe water, are uſed for the ſame purpoſe. But when there is neede of detergent and ſarcoticke medicines, then ℞ *ſyrup. roſar. ſiccar.* ℥j. *aq. fænic. & rutæ an.* ʒij, *aloes lotæ, olibani an.* ℥ß. mixe them for the foreſayd uſe. The galls of Scates, Hares, and Partridges diſſolved in eye-bright and fennell water, are fit for clenſing ſuch wounds; as alſo this following *Collyrium.*

Detergent medicines.

℞ *Aquæ hordei* ℥j. *mellis deſpumati* ʒiij. *aloes ter lotæ in aqua plantaginis* and *ſacchari cand. an* ʒj. *fiat collyrium.* Alſo this enſuing medicine is very ſarcoticke.

A ſarcoticke medicine for the eyes.

℞ *mucagin. gummi olibani, arabici, tragacanth. & ſarcocol. in aq. hordei extract. an.* ʒiij, *aloes ter lotæ in aq. roſarum* ʒj. *ceruſ. uſtæ & lotæ, tutiæ præpar. an.* ʒß *fiat collyrium.*

But here you muſt note, that the coate *Adnata* often ſwells ſo much by reaſon of a wound or ſome other injurie, and ſtands ſo forth by the falling downe of humores, acceſſe and mixture of flatulencies, that it hides the whole *Pupilla,* and hangs forth of the eye-lids, like as if it were an unnaturall fleſhy excreſcence, and it looſes the native colour, and lookes very red; ſo that the eye can neither bee ſhut nor opened.

Wherewith a young Chirurgion being deceived, determined to cut away this protuberancie of the *Adnata,* as though it had beene ſome ſuperfluous fleſh, and then to waſte it with cathæreticke powders, had I not forbidden him, telling him of the certaine danger of blindneſſe which would thereupon befall the patient. Wherefore I preſcribed a fomentation of chamomile, melilote, Roſe leaves, wormewood, rue, fennell, and aniſeedes boyled in milke with the rootes of Orris and marigolds. Then I preſently added this following fomentation, being more powerfull and drying.

A drying fomentation.

℞ *Nucis cupreſsi, gallar. balauſt. an.* ℥j. *plantag. abſinth. hippuris, flo. chamæm. roſ. rub. an. M.* ß. *bulliant ſimul cum aqua fabrorum, & fiat decoctum pro fotu cum ſpongia.*

Beſides alſo you may apply a cataplaſme made of barly and beane flowre, the powders of Maſticke, Mirrhe, and Aloes, and ſome of the laſt deſcribed decoction. The tumor beginning to decline; I dropt the flowing liquor into the eye, which hath a very aſtringent, drying and ſtrengthening faculty.

Roaſt a new layd egge in Embers untill it be hard, then pill off the ſhell, take forth the yolke, and in place thereof put a ſcruple of Roman Vitrioll in fine powder, then put it in a linnen cloath and wring it hard forth into ſome cleane thing, and droppe thereof for ſome dayes into the eye, with a little ſmithes water wherein Sumach and Roſe leaves have beene boyled. I have found by experience the certaine force of this remedy; but if notwithſtanding there be a true fleſhy excreſcence upon the coate *Adnata,* it may be taken away by this following powder.

A medicine to conſume a fleſhy excreſcence without biting.

℞ *Oſsis ſepiæ, & teſtæ ovorum calcinatæ an.* ʒj, *fiat pulvis.* Calcined Vitriole, burnt Alome and the like may bee commodiouſly uſed to this purpoſe. Yet you muſt warily make uſe of all ſuch things, and alwayes lay repercuſſives about the eye, that no harme enſue thereof.

For diverſe times acride humors fall downe into the eye with ſuch violence, that they breake the Horny coate, whereupon the humors of the eye are poured out. Remember alſo, that in diſeaſes of the eyes, the Patient lye with his head ſomewhat high, and that he keepe ſhut not only the pained, but alſo the ſound eye, becauſe reſt is alwayes neceſſary for the grieved part. But one eye cannot bee moved without ſome motion of the other by reaſon of the connexion they have by their opticke and moving nerves, both the *Meninges,* the *Pericranium,* Veines, and Arteries; which is the cauſe that when the one ſuffers, the other in ſome ſort partakes therewith.

A Seton a good remedy againſt inveterate defluxions into the eyes.

But if we cannot prevaile by all theſe formerly preſcribed medicines fit to ſtay the defluxion, then it remaines, that wee apply a Seton to the necke; for it is a ſingular remedy againſt inveterate defluxions into the eyes. For we know by dayly experience, that many who have had their ſight dulled by a long and great defluxion, ſo that they were almoſt blinde, have by little and little recovered their former ſplendour and ſharpeneſſe of ſight, when matter once begun to bee evacuated by the Seton.

A Hiſtory.

The truth hereof appeared in *Paul* the Italian Goldſmith, who dwelt neere the Auſtine Friers. For he having uſed many medicines of diverſe Phyſitions, and Chirurgions in vaine, when he was almoſt blinde, he applying a Seton, by mine advice, began by little and little to ſee better according to the quantity of the matter which was evacuated, untill at length he perfectly recovered his ſight. But at laſt growing wearie of the Seton which he had worne for a yeere (although matter came dayly forth thereof) yet he would have it taken forth, and healed up; but this way of evacuation being ſhut up, and the humor againe beginning to flow into his eyes, ſo that he was in danger to become blinde, hee called me and made me againe to apply the Seton in his necke. Whereby recovering his former ſoundneſſe and perfection of ſight, he yet weares the Seton.

A Seton good againſt the falling ſickeneſſe.

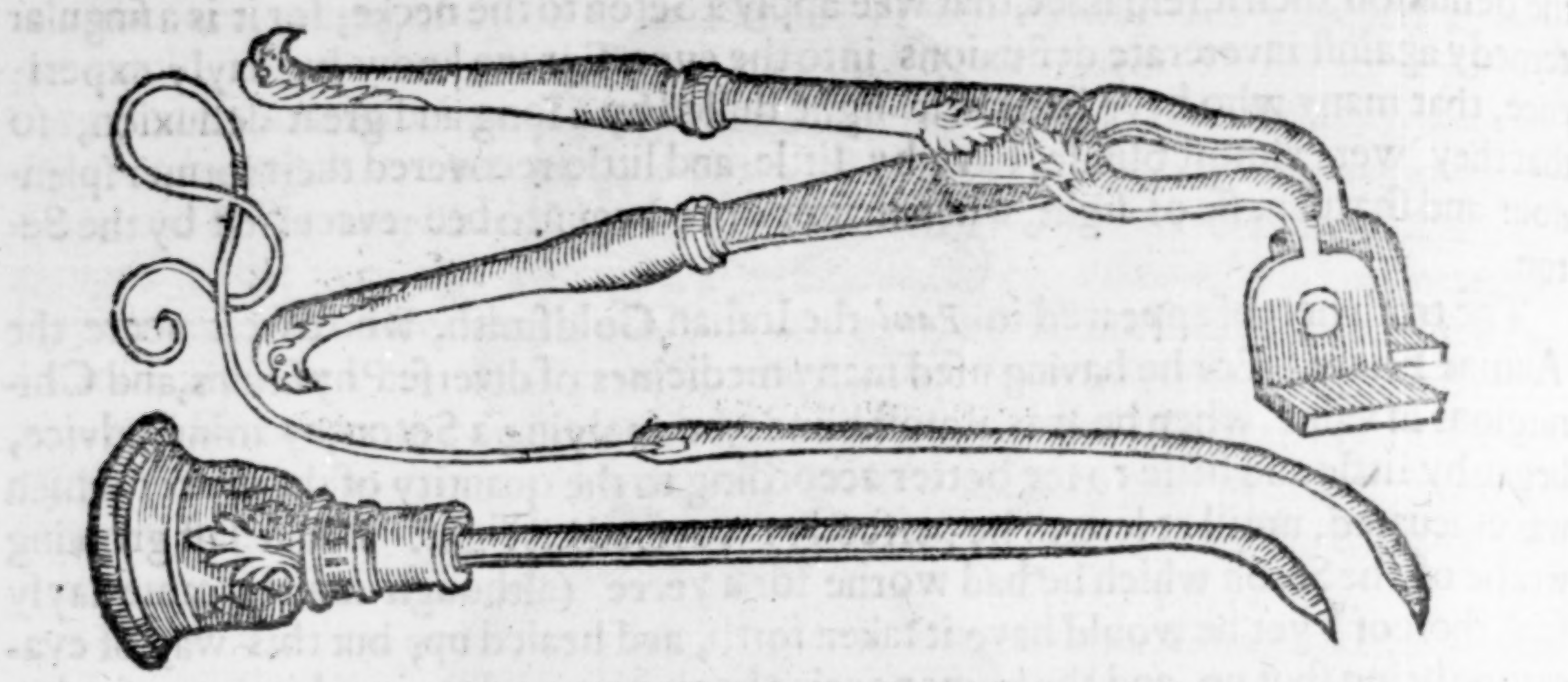
I alſo once freed by this kinde of remedy, by the appointment of the moſt learned Phyſition *Hellerius*, a certaine young man of twenty yeeres old, from the falling ſickeneſſe, who before had many fits thereof; the Ichorous humors the feeders of this diſeaſe being by this meanes, as it is moſt probable, drawne away and evacuated.

The manner of making a Seton.

Wherefore ſeeing a Seton is of this uſe, I have thought good in this place to ſet downe in writing and by figure, the manner of making thereof, for the behoofe of young practitioners. Wiſh the patient to ſit on a low ſtoole, and to bend downe his head, that ſo the ſkinne and fleſhy pannicle may be relaxed; then muſt you with your fingers plucke up and ſever the ſkinne from the muſcles, and take hold of as much hereof as you can with your pincers, not touching the muſcles of the necke for feare of a convulſion and other ſymptomes; you ſhall then twitch the ſkinne which is held in the pincers, moſt hard, when you ſhall thruſt the hot Iron through the holes made in the midſt of them; that alſo the nerves being ſo twitched, the dolorificke ſenſe may the leſſe come to the part. The wound muſt be made or burnt in long wayes and not twharting, that ſo the matters may be the better evacuated by the ſtraight fibers. But the cautery or hot Iron muſt have a three or elſe a foure-ſquare point and that ſharpe, that ſo it may the more eaſily and ſpeedily enter. Then keeping the pincers immoveable, let him draw through the paſſage made by the cautery a needle thred with a three or foure doubled threed of Cotton [or rather a skeane of ſilke] moiſtned in the white of an egge and oyle of Roſes; then after you have applyed pledgets dipped in the ſame medicine, binde up the part with a convenient ligature. The day following the necke muſt be annointed with oyle of Roſes, and the pledgets dipped in the former medicine applyed for ſome dayes after. But it will bee convenient to moiſten the Seton with a digeſtive made of the yolke of an Egge and oyle of Roſes, untill the ulcer caſt forth much matter; then you ſhall annoint the Cotton thred with this following remedie. ℞ *terebinthinæ ven.* ℥iiij. *ſyrupi roſat. & abſinthij an.* ℥ß. *pulveris Ireos, diacrydij, agarici trochiſcati, & Rhei, an.* ℥ß. *incorporentur omnia ſimul & fiat medicamentum.* Which you ſhall uſe ſo long, as you intend to keepe open the ulcer. For it hath a facultie to draw the humors from the face, and clenſe without biting.

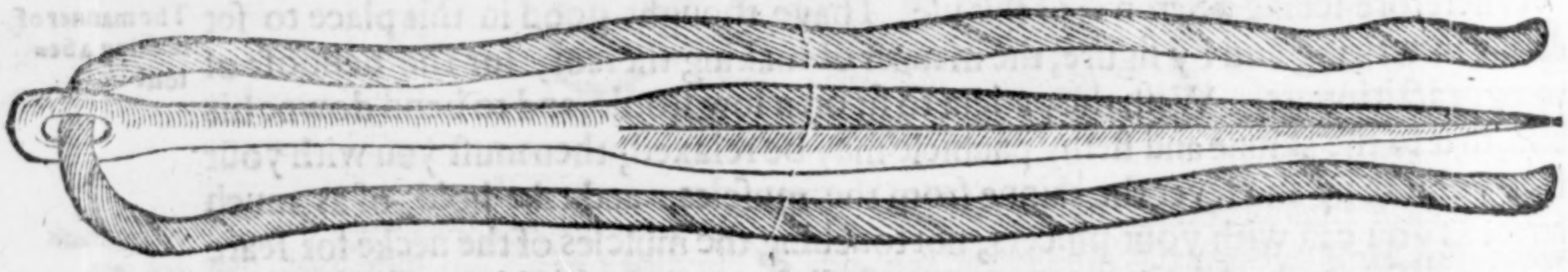
A

A figure of the Pincers, actuall Cautery and Needle uſed in making a Seton.



I have found not long ſince by experience, that the apertion made with a long thicke Triangular needle of a good length like to a large Pack-needle, is leſſe painefull, than that which is performed with the actuall cautery, which I formerly mentioned. Wherefore I would adviſe the young Chirurgion, that hee no more uſe the foreſayd actuall cauterie. I have here given you the figure of the Needle.

The Figure of a Triangular Needle.



CHAP. XXV.

Of Wounds of the Cheeke.

The uſe of a dry ſuture.

SEeing a wound of the cheeke ſeemes to require a ſuture, it muſt have a dry ſuture (as they terme it) leaſt that the ſcarre ſhould become deformed. For that deformity is very greevous to many, as to women who are highly pleaſed with their beauties. Therefore you ſhall ſpread two peeces of new cloath of an indifferent fineneſſe, and proportionable bigneſſe with this enſuing medicine.

How to make a dry ſuture.

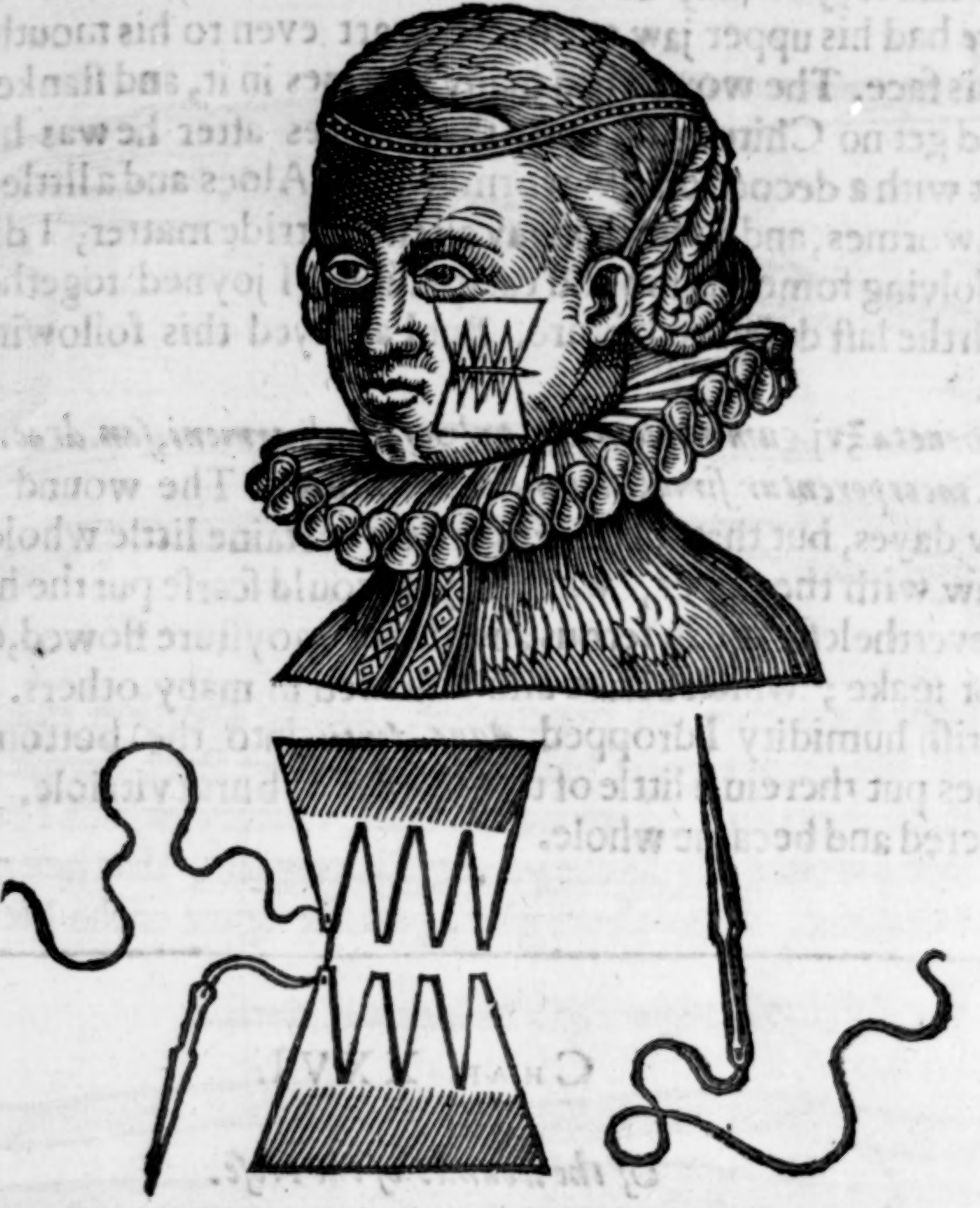
℞ *pulveris maſtichini, ſanguinis Draconis, thuris, farinæ volatilis, tragacanthæ contuſæ, gypſi, picis, ſarcocollæ an.* ʒij. *picis nigræ* ʒiß. *albumina ovorum quæ ſufficiant, fiat medicamentum.* Apply the peices of cloath ſpread with this on each ſide of the wound one, ſome fingers breadth aſunder, and let it alone till it be hard dryed to the skinne. Then you ſhall ſo draw them together with your needle and thred, that the fleſh by their ſticking may alſo follow, and bee mutually adjoyned, as you may ſee it here expreſt. The wound ſhall be agglutinated by this meanes, together with the uſe of fit medicines, pledgers, ligatures. But all the ligatures and ſtayes which ſhall be uſed for that purpoſe muſt be faſtened to the patients night-lappe.

A Suture fit for hare-lips.

The manner thereof.

But when the wound is great and deep, and the lips thereof are much diſtant the on from the other, there can be no uſe of ſuch a dry ſuture. Wherefore you muſt uſe a three or foure ſquare needle (that ſo it may the more readily and eaſily enter into the fleſh) being thred with a waxed thred; and with this you muſt thruſt through the lips of the wound, and leave the needle ſticking in the wound, and then wrappe the thred to and againe over the ends thereof eight or ten times, juſt after that manner which women uſe to faſten a needle with thred in it, upon their ſleeves, or Tailors to their hatts or capps, that they may not loſe them.

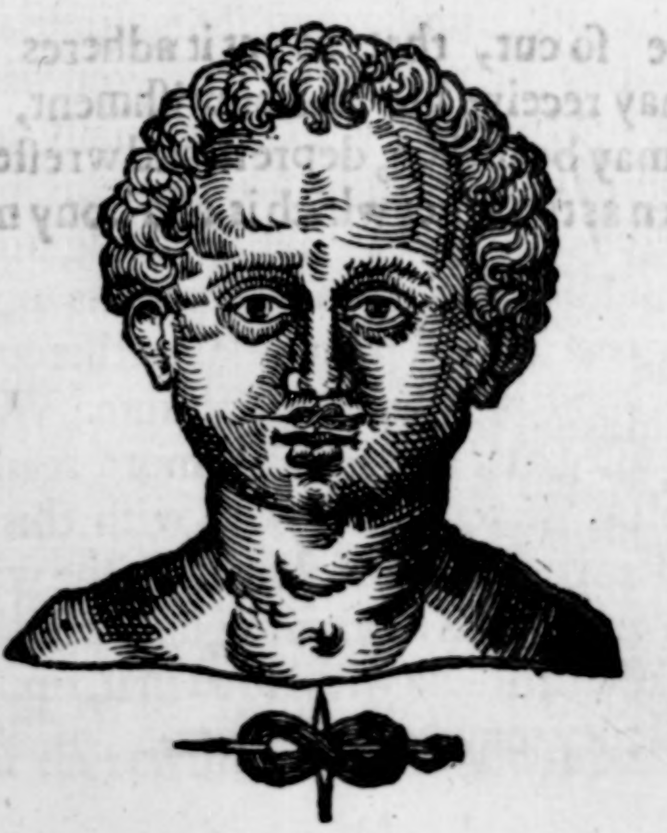
The



The needle thus faſtened, ſhall bee there untill the perfect agglutination of the wound; this kind of ſuture is uſed in the wounds of the lips, as alſo in hare-lips, for ſo we commonly call lips which are cleft from the firſt conformation in the wombe by the error of the forming faculty. But ſuch a ſuture will helpe nothing to agglutination, if there lye or remaine any skin betweene the lips of the wound; Wherefore you ſhall cut away whatſoever thereof ſhall be there, other-wiſe you muſt expect no union. Other kinde of ſutures are of no great uſe in wounds of theſe parts, for out of the neceſſity of eating and ſpeaking, they are in perpetuall motion; wherefore a thrid would cut the fleſh; for which reaſon you ſhall take up much fleſh with ſuch Needles mentioned in this laſt deſcribed kinde of Suture, as this following figure ſhewes.

What hare lips are

The figure of the ſuture fit for cloven or Hare lips, as alſo the dilineation of the Needle about whoſe ends the thrid is wrapped over and under, to and againe.



To

A Hiſtory.

A decoction good to waſh away putrefaction.

To this purpoſe I will recite a hiſtory, to the end, that if any ſuch thing happen to come to your hands, you may doe the like. A certaine Gaſcoine in the battell at Saint *Laurence* had his upper jaw cut overthwart even to his mouth, to the great disfiguring of his face. The wound had many wormes in it, and ſtanke exceedingly, becauſe he could get no Chirurgion untill three dayes after he was hurt. Wherefore I waſhed it with a decoction of wormewood, Aloes and a little *Ægyptiacum*, both to kill the wormes, and to fetch away all the putride matter; I diſcuſſed the tumor with a diſſolving fomentation and cataplaſime, I joyned together the lippes of the wound with the laſt deſcribed ſuture. But I applyed this following medicine to the whole part.

A ſmall hole remaining after the cure of great wounds.

℞ *Terebinth. venetæ* ℥vj. *gummi elemi.* ℥ij. *pulveris boli armeni, ſan. drac. Maſtickes, myrrhæ, aloes an.* ʒß. *incorporentur ſimul, fiat medicamentum.* The wound was agglutinated within a few dayes, but that there remained a certaine little whole at the joyning of the lower jaw with the upper, wherein you could ſcarſe put the head of a pinne; out whereof neverthеleſſe much ſerous and thinne moyſture flowed, eſpecially when he either eate or ſpake; which I have alſo obſerved in many others. But for ſtaying of this watriſh humidity I dropped *Aqua fortis* into the bottome of the ulcer, and divers times put therein a little of the powder of burnt vitriole. Thus by Gods grace he recovered and became whole.

Chap. XXVI.

Of the wounds of the Noſe.

How many wayes the noſe may be hurt.

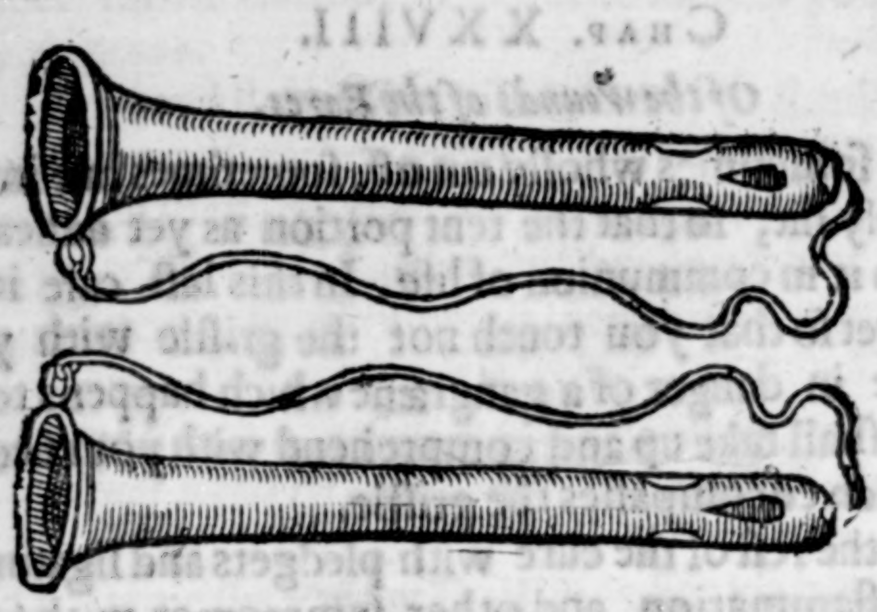
The cure of a broken noſe.

The uſe of pipes in broken noſes

THe Noſe many wayes ſuffers ſolution of continuity; as by a wound, fracture and contuſion, and it is ſometimes battered and broken on the upper part; which when it happens, you ſhall reſtore the depreſt bones to their native ſeat and figure, with the end of a *ſpatula* or fit ſticke wrapped about with towe, cotton or a linnen ragge. Then with pledgets dipped in an aſtringent medicine compoſed *ex albumine ovi, maſtich, bolo armeno, ſanguine drac. & Alumine uſto*, and applyed to the ſide of the noſe, hee ſhall labour to ſtrengthen the reſtored bones, and then binde them with a convenient ligature, which may not preſſe them too much, leſt the noſe ſhould become flat, as it happens to many through the unskilfulneſſe of Chirurgions. Then muſt you put little pipes into the noſe-thrills, and theſe not exactly round, but ſomewhat flat and depreſt, tyed to the night-cappe on each ſide with a thred, leaſt they ſhould fall out. By the helpe of theſe pipes the bones of the noſe will be kept in their place, and there will be paſſage forth for the matter, and for inſpiration and exſpiration. But if all the noſe, or ſome portion thereof ſhall bee wholy cut off, wee muſt not hope to reſtore it.

But if the Noſe bee ſo cut, that as yet it adheres to much of the adjacent fleſh, from whence it may receive life and nouriſhment, then ſow it up. For the lower part of the noſe it may be ſhaken, depreſt and wreſted aſide, ſeeing it is griſtly; but it cannot be broken as the other which is of a bony nature.

The Figure of pipes to be put into the Noſe-thrills.



CHAP. XXVII.

Of the Wounds of the tongue.

THe tongue may bee ſo wounded, that either it may bee wholely cut off and deprived of ſome portion of the ſubſtance, or onely ſlit long wayes or atwhart. The loſſe of the ſubſtance cannot bee repaired, becauſe every part ſeparated and pluckt from the living body, from whence it had life, ſpirit and blood, preſently dyes. For as the Philoſophers ſay, *A privatione ad habitum non eſt regreſſus.* But when it is cut or ſlit longwayes or ſidewayes, it is eaſily reſtored by ſuture, if ſo bee that the cloven part yet adhere to the living body from whence it may draw both matter and forme of life. Therefore a carefull ſervant ſhall ſtraitly hold with a ſoft and cleane linnen cloth the body of the tongue, leaſt it ſhould ſlip away by reaſon of its ſlipperineſſe, whilſt the Chirurgion ſtitch it above and below; when he thinkes hee hath ſufficiently ſowed it, let him cut off the threed as neere to the knot as he can, leaſt being left too long it might bee tangled with the teeth as hee eates, and ſo cauſe a hurtfull laceration or rending of the ſowed parts. In the meane time let the patient eate barly creames, almond milkes, Gelleyes, culliſſes and broathes, and the yolkes of egges; and let him often hold in his mouth Sugar of Roſes and ſyrupe of Quinces; for ſuch things beſides their nouriſhing faculty, performe the part of an agglutinating and detergent medicine.

How many wayes the continuity of the tongue may be looſed.

The cure of a cloven tongue.

I have learned theſe things I have here ſet downe, neither from my Maſters whom I have heard with attention, nor by reading of bookes, but they have beene ſuch as I have tryed with happy ſucceſſe in many; as in the ſonne of Monſieur *de Marigny* preſident of the Inquiſition, in *Iohn Piet* a Carpenter dwelling in the ſuburbs of Saint *German*.

But moſt apparently in a child of three yeeres old, the ſonne of the great Lawyer Monſier *Couet*, who fell with his chin upon a ſtone, and ſo cut off a large peece of the end of his tongue, which chanced to be betweene his teeth, it hung but at a very ſmall fiber of fleſh, ſo that I had very little or no hope to agglutinate and unite it, which thing almoſt made me to plucke it quit away; yet I changed that determination by conſidering the loſſe of the moſt noble action of ſpeaking, which would thereupon enſue, and weighing the providence of nature often working wonders and ſuch things as exceed the expectation of the phyſition in curing diſeaſes.

A Hiſtory.

I alſo thought thus with my ſelfe, the fleſh of the tongue is ſoft, looſe, fungous and ſpungie, neither is it altogether obvious to the externall injuries of the ayre; wherefore after that I had once or twiſe thruſt through the needle and thred upwards and downewards, and for the reſt ordered the child to be uſed and dieted after the man-

Nature oft doth ſtrange things in the cures of diſeaſes.

manner I lately mentioned, he grew well within a ſhort time, and yet remaines ſo, ſpeaking well and diſtinctly.

Chap. XXVIII.

Of the Wounds of the Eares.

How many wayes the unity of eares may be violated.

How to ſow a wounded Eare.

THe eares are ſometimes wholly cut off, ſometimes but in part, otherwhiles they are onely ſlit, ſo that the rent portion as yet adhearing to the reſt, is joyned with it in communion of life. In this laſt caſe it is fit to uſe a ſuture; but yet ſo that you touch not the griſtle with your needle; for thence there would be in danger of a gangræne which happens to many by fooliſh curing; therefore you ſhall take up and comprehend with your needle only the skin, and that little fleſh which encompaſſes the griſtle.

You ſhall performe the reſt of the cure with pledgets and ligatures artificially fitted, and ſhall reſiſt inflammation and other ſymptomes with fit medicines. But you muſt take ſpeciall care that no ſuperfluous fleſh grow in the auditory paſſage, which may hinder the hearing; wherefore you ſhall keepe that paſſage free by ſtopping it with a peece of ſpunge. But you ſhall procure agglutination and conſolidation of the griſtly part (and therefore next to a bone moſt dry) with dry medicines. But thoſe who have their eares quite cut off, can doe nothing but hide the deformity of their miſſe-hap with a cap, ſtuffed with Cotton on that ſide.

Chap. XXIX.

Of the Wounds of the necke and throate.

The differences of wounds of the necke and throate.

THe Wounds of the necke and throate are ſomewhiles ſimple, as thoſe which onely uſe the continuity of the muſcles; other whiles compound, ſuch as thoſe which have conjoyned with them a fracture of the bones, as of the *Vertebræ*, or hurt of the internall and externall jugular Veines, or ſleepy Arteries; ſometimes the *Trachea Arteria*, or Weazon, and the *æſophagus* or gullet are wounded; ſometimes wholy cut off, whence preſent death enſues. Wherefore let not the Chirurgion meddle with ſuch wounds, unleſſe he firſt foretell the danger of death, or the loſſe of ſome motion to thoſe that are preſent. For it often happens that ſome notable nerve or tendon is violated by a wound in the necke, whence a palſie enſues, and that abſolutely incureable, if the wound ſhall penetrate to the ſpinall marrow, alſo hurt therewith. Wounds of the gullet and Weazon are difficultly cured becauſe they are in perpetuall motion; and chiefely of the latter by reaſon it is griſly and without blood. The wounds of the gullet are knowne, by ſpitting of blood, by the breaking forth of meate and drinke by the wound; but if the gullet be quite cut aſunder, the patient cannot ſwallow at all. For the cut parts are both contracted in themſelves, the one upwards, and the other downewards. But we know the weazon is hurt, by caſting up blood at the mouth with a continuall cough, and by the comming forth of the breath or winde by the Wound. The Wounds of the jugular Veines and ſleepy Arteryes, if they be great, are uſually deadly, becauſe they cannot bee ſtraitely bound up; for you cannot binde the throate hard without danger of choaking or ſtrangling the patient. But for defect of a ſtraite ligature in this caſe the fluxe of blood prooves deadly. If the recurrent Nerve of either ſide be cut, it makes the voyce hoarſe; if cut on both ſides, it takes away the uſe of ſpeech, by hurting theſe inſtruments which impart motion to the muſcles of the *Larinx*. For the cure if the wound be ſmall, & not aſſociated with the hurt of any notable veſſell, nor of the Weazon and gullet, it is ſpeedily and eaſily cured; and if there ſhall be neede you ſhall uſe a ſuture, then you ſhall put therein a ſufficient quantity of Venice Turpentine mixed with bole-Armenicke; or elſe ſome of my Balſame of which this is the receipt. ℞. *Terebinth. venetæ* ℔ *ſſ. gum. elemi* ℥iiij. *olei hypericonis* ℥iij. *boli armeni, & ſang. draconis an.* ℥j. *aquæ vitæ* ℥ij. *liquefiant ſimul omnia lento igne, & fiat Balſamum ut artis eſt, addendo pulveris ireos Florent. aloes, Maſtiches, myrrhæ, an.* ʒj. I have done wonders with this Balſame in the agglutination of ſimple wounds, wherein no ſtrange body hath beene.

The palſie followes upon wounds of the necke.

Signes that the gullet is wounded.

The wounds of the iugular veines and ſleepy Arteries are deadly by accident.

By hurting the recurrent Nerve the voyce is hurt.

The deſcription of the Authors Balſame.

Now

The faculty of *Diacalcitheos*.

Now when you have put it in, lay upon it a plaiſter of *Diacalcitheos* diſſolved in oyle of Roſes and vinegar, as that which hath power to repreſſe the flowing downe of humors, and hinder inflammation, or in ſteede thereof you may apply *Emp. de Gratia, Dei*, or *Emp. de Ianua*.

The cure of the wounded Weazon and gullet.

But if the jugular veines and ſleepy Arteries bee cut, let the bleeding bee ſtayed, as we have ſhewed in a chapter, treating thereof. When the Weazon or Gullet are wounded, the Chirurgion ſhall ſow them up as neatly as hee can; and the patient ſhall not endeavour to ſwallow any hard thing, but be content to bee fed with gellyes and brothes. When a gargariſme is needfull, this following is very good.

A gargariſme.

R. *hordei M.* j. *florum roſar. p.* j. *paſſul. mund. jujubarum an.* ʒß, *glycyrhizæ* ℥j. *bulliant omnia ſimul, addendo mellis roſ. & Iulep. roſ. an.* ℥ij. *fiat gargariſma, ut artis eſt.*

The manifold uſe thereof.

With which being warme the Patient ſhall moyſten his mouth, and throate, for it will mittigate the harſhneſſe of the part, aſwage paine, cleanſe and agglutinate, and make him breathe more freely. But that the Chirurgion may not deſpaire of, or leave any thing unattempted in ſuch like wounds, I have thought good to demonſtrate by ſome examples, how wonderfull the workes of nature are, if they be aſſiſted by Art.

A Hiſtory.

A certaine ſervant of Monſieur *de Champaigne*, a gentleman of *Anjou*, was wounded in the throat with a ſword, whereby one of the jugular veines was cut together with his Weazon. Hee bled much and could not ſpeake, and theſe ſymptomes remained, untill ſuch time as the wound was ſowed up, and covered with medicines, But if the medicines at any time were more liquid, hee as it were ſucked them by the wound and ſpaces betweene the ſtitches, and preſently put forth at his mouth that which he had ſucked or drawne in. Wherefore more exactly conſidering with my ſelfe, the greatneſſe of the Wound, the ſpermaticke, and therefore dry and bloodleſſe nature unapt to agglutination, of the affected part, but cheefely of the Weazon & jugular veine; as alſo for that the rough Artery is obnoxious to theſe motions which the gullet performes in ſwallowing, by reaſon of the inner coate, which is continued to the coate of the gullet, by which meanes theſe parts mutually ſerve each other with a reciprocall motion, even as the ropes which runne to the wheele of a pulley; furthermore weighing that the Artery was neceſſary for the breathing, and tempering the heate of the heart, as the jugular veines ſerved for the nouriſhment of the upper parts; and laſtly weighing with my ſelfe the great quantity of blood he had loſt, which is as it were the treaſure of nature, I told thoſe which were preſent, that death was neere and certainely at hand. And yet beyond expectation, rather by divine favour than our Art, he recovered his health.

A ſtrange Hiſtory.

Equally admirable is this hiſtory following. Two Engliſhmen walked out of the Citty of *Paris* for their recreation to the wood of *Vincenne*; but one of them lying in waite to rob the other of his money and a maſſie chaine of gold which hee wore, ſet upon him at unawares, cut his throate and robbed him, and ſo left him amongſt the Vines which were in the way, ſuppoſing he had kill'd him having with his dagger cut the Weaſon and gullet.

This murderer came backe to the citty; the other halfe dead, crawled with much adoe to a certaine Peaſants houſe, and being dreſſed with ſuch medicines as were preſent and at hand, he was brought to the Citty, and by his acquaintance committed to my cure to be cured.

I at the firſt, as diligently as I could, ſowed up the Weaſon which was cut quite aſunder, and put the lips of the wound as cloſe together as I could; I could not get hold of the gullet becauſe it was fallen downe into the ſtomacke, then I bound up the wound with medicines, pledgets and fit ligatures. After he was thus dreſt he begun to ſpeake, and tell the name of the villaine the author of this fact, ſo that hee was taken and faſtened to the wheele, and having his limbes broken loſt his wretched life, for the life of the innocent wounded man who dyed the fourth day after he was hurt.

Another Hiſtory.

The like hurt befell a certaine Germane; who laye at the houſe of one *Perot* in the ſtreete of Nuts; he being franticke in the night cut his throate with a ſword. I being called in the morning by his friends who went to ſee him, dreſt him juſt after the ſame manner as I dreſſed the Engliſhman. Wherefore he preſently recovering his ſpeech, which before could not utter one ſillable, freed from ſuſpition of the crime and priſon the ſervant, who lying in the ſame chamber with him, was upon ſuſpition committed to priſon, and confeſſing the thing as it was done, lived foure dayes after the wound, being nouriſhed with broathes put into his fundament like clyſters, and with the gratefull vapour of comfortable things, as bread newly drawne out of the Oven and ſoked in ſtrong wine.

Having thus by the Art of Chirurgery made the dumbe ſpeake for the ſpace of foure dayes.

CHAP. XXX.

Of the Wounds of the Cheſt.

The differences of wounds of the Cheſt.

SOme wounds of the Cheſt are on the fore ſide, ſome behinde, ſome penetrate more deepe, others enter not into the capacity thereof, other ſome peirce even to the parts contained therein, as the *Mediaſtinum*, Lungs, heart, midriffe, hollow veine, and aſcendent artery; Other ſome paſſe quite through the body; whereby it happens that ſome are deadly, ſome not.

The ſignes.

You ſhall thus know that the wound penetrates into the capacity of the Cheſt, if that when the patients mouth and noſe be ſhut, the breath, or winde breakes through the wound with noyſe, ſo that it may diſſipate, or blow out a lighted candle being held neere it. If the patient can ſcarſe either draw, or put forth his breath, which alſo is a ſigne that there is ſome blood fallen downe upon the *Diaphragma*.

Signes that the heart is wounded.

By theſe ſignes you may know that the heart is wounded: If a great quantity of blood guſh out, if a trembling poſſeſſe all the members of the body; if the pulſe bee little and faint, if the colour become pale, if a cold ſweate and frequent ſowning aſſayle him, and the extreame parts become cold, then death's at hand.

A Hiſtory.

Yet when I was at *Turin* I ſaw a certaine Gentleman who fighting a Duell with another, received a wound under his left breſt which pierced into the ſubſtance of his heart, yet for all that he ſtrucke ſome blowes afterwards, and followed his flying Enemie, ſome two hundred paces untill hee fell downe dead upon the ground; having opened his body, I found a wound in the ſubſtance of the heart, ſo large as would containe ones finger; there was onely much blood poured forth upon the midriffe.

Signes that the Lungs are wounded.

Theſe are the ſignes that the Lungs are wounded, for the blood comes foamie or frothy out of the wounds the patient is troubled with a cough, hee is alſo troubled with a great difficulty of breathing and a paine in his ſide, which hee formerly had not; he lyes moſt at eaſe when he lyes upon the wound, and ſometimes it comes ſo to paſſe, that lying ſo he ſpeakes more freely and eaſily, but turned on the contrary ſide, he preſently cannot ſpeake.

Signes that the midriffe is wounded.

When the *Diphragma* or midriffe is wounded, the party affected is troubled with a weight or heavineſſe in that place, hee is taken with a *Delirium*, or raving by reaſon of the ſympathy of the Nerves of the ſixth conjugation which are ſpread over the midriffe; difficulty of breathing, a cough and ſharpe paine trouble the patient, the Guts are drawne upwards; ſo that it ſometimes happens by the vehemency of breathing, that the ſtomacke and gutts are drawne through the wound in to the capacity of the Cheſt; which thing I obſerved in two.

A Hiſtory.

The one of theſe was a Maſon, who was thruſt though the midſt of the midriffe, where it is Nervous, and dyed the third day following. I opening his lower belly, and not finding his ſtomacke, thought it a monſtrous thing; but at length ſearching diligently, I found it was drawne into the Cheſt, though the wound which was ſcarce an inch broade. But the ſtomacke was full of winde, but little humidity in it.

Another Hiſtory.

The other was called captaine *Francis d'Alon* a Native of *Xintoigne*, who before *Rochell* was ſhot with a musket bullet, entring by the breaſt-bone neere to the ſword-like Griſtle and paſſing through the fleſhy part of the midriffe, went out at the ſpace betweene the fifth and ſixth baſtard ribbes. The wound was healed up on the out ſide, yet for all that there remained a weakeneſſe of the ſtomacke, whereupon a paine of the guttes like to the colicke tooke him eſpecially in the Evening, and on the night; for which cauſe he durſt not ſup but very ſparingly. But on the eighth month after, the paine raging more violently in his belly than it was accuſtomed, hee dyed; though for the mitigating of the vehemency thereof *Simon Malmedy* and *Anthony du Val* both learned Phyſitions omitted no kinde of remedy. The body of the diſeaſed was opened by the skilfull Chirurgion, *Iames Guillemeau*, who found a great portion of the collicke gut ſwelled with much wind gotten into the Cheſt, through the wound of the *Diaphragma*, for all it was ſo ſmall that you could ſcarſe put your little finger in thereat. But now let us returne from whence we digreſſed.

Signes that there is blood poured into the capacity of the Cheſt.

We underſtand that there is blood poured forth into the capacity of the Cheſt by the difficulty of breathing, the vehemency of the encreaſing feaver, the ſtinking of the breath, the caſting up of blood at the mouth, and other ſymptomes which uſually happen to theſe who have putrified and clotted blood poured out of the veſſells into the belly, infecting with the filthy vapour of the corrupt ſubſtance, the parts to which it ſhall come.

But alſo, unleſſe the patient cannot lye upon his backe, he is troubled with a deſire to vomite, and covets now and then to riſe, whence hee often falls into a ſwond, the vitall faculty which ſuſteines the body being broken and debilitated both by reaſon of the wound, and concreate or clotted blood; for ſo putting on the quality of poyſon, it greatly diſſipates and diſſolves the ſtrength of the heart.

Signes that the ſpine is wounded.

It is a ſigne the ſpinall marrow is hurt, when a convulſion or Palſie, that is, a ſuddaine loſſe of ſenſe and motion in the parts thereunder, an unvoluntary excretion of the Vrine and other excrements, or a totall ſuppreſſion of them, ſeazes upon the Patient.

When the hollow veine and great Artery are wounded, the patient will dye in a ſhort time, by reaſon of the ſuddaine and aboundant effuſion of the blood and ſpirits, which intercepts the motion of the lungs and heart, whence the party dyes ſuffocated.

Chap. XXX.

Of the cure of the Wounds of the Cheſt.

Vigo tract. de vuln. thorac. cap. 10.

WE have read in *Iohn de Vigo*, that it is diſputed amongſt Chirurgions concerning the conſolidation of wounds of the Cheſt. For ſome thinke that ſuch wounds muſt bee cloſed up, and cicatrized with all poſſible ſpeed, leaſt the cold ayre come to the heart, and the vitall ſpirits flye away and bee diſſipated. Others on the contrary thinke that ſuch wounds ought to be long kept open; and alſo' if they be not ſufficiently large of themſelves, that then they muſt be enlarged by Chirurgery, that ſo the blood powred forth into the capacity of the Cheſt may have paſſage forth, which otherwiſe by delay would putrefie, whence wound enſue an increaſe of the feaver, a fiſtulous ulcer, and other pernicious accidents.

The firſt opinion is grounded upon reaſon and truth, if ſo bee that there is little or no blood poured forth into the capacity of the Cheſt; But the latter takes place where there is much more blood contained in the empty ſpaces of the Cheſt. Which leaſt I may ſeeme raſhly to determine, I thinke it not amiſſe to ratifie each opinion with a hiſtory thereto agreeable.

A Hiſtory.

Whileſt I was at *Turin*, Chirurgion to the Marſhall of *Montejan*, the King of France his Generall, I had in cure a ſouldier of *Paris*, whoſe name was *L'eveſque*, he ſerved under captaine *Renouart*. He had three wounds, but one more greevous than the reſt, went under the right breſt, ſomewhat deepe into the capacity of the Cheſt, whence much blood was poured forth upon the midriffe, which cauſed ſuch difficulty of breathing, that it even tooke away the liberty of his ſpeech; beſides, though this occaſion he had a vehement feaver, coughed up blood, and a ſharpe paine on the wounded ſide. The Chirurgion which firſt dreſt him, had ſo bound up the wound with a ſtraite and thicke ſuture, that nothing could flow out thereat. But I being called the day after, and weighing the preſent ſymptomes which threatned ſpeedy death, judged that the ſowing of the wound muſt ſtraight be looſed; which being done, there inſtantly appeared a clot of blood at the orifice thereof; which made mee to cauſe the patient to lye halfe out of his bed, with his head downewards, and to ſtay his hands on a ſettle which was lower than the bed, and keeping himſelfe in this poſture, to ſhut his mouth and noſe that ſo his lungs ſhould ſwell; the midriffe be ſtretched forth, and the intercoſtall muſcles and thoſe of the *Abdomen* ſhould be compreſſed, that the blood powred into the Cheſt might be evacuated by the wound; but alſo that this excreſcion might ſucceede more happily, I thruſt my finger ſomewhat deepe into the wound, that ſo I might open the Orifice thereof being ſtopped up with the congealed blood; and certainely I drew out ſome ſeaven or eight ounces of putrified and ſtinking blood by this meanes. When he was layd in his bed, I cauſed frequent injections to be made into the wound of a decoction of Barly with honey of Roſes and red Sugar, which being injected I wiſht him to turne firſt on the one, and then on the other ſide and then, againe to lye out of his bed as before; for thus he evacuated ſmall, but very many clots of blood, together with the liquor lately injected; which being done, the ſymptomes were mittigated, and left him by little and little. The next day I made another more detergent injection, adding thereto wormewood, centaury, and Aloes; but ſuch a bitterneſſe did riſe up to his mouth together with a deſire to caſt, that he could not longer endure it. Then it came into my mind that formerly I had obſerved the like effect of the like remedy in the Hoſpitall of *Paris*, in one who had a fiſtulous ulcer in his Cheſt. Therefore when I had conſidered with my ſelfe that ſuch bitter things may eaſily paſſe into the Lungs, and ſo may from thence riſe into the Weazon and mouth, I determined that thence forwards I would never uſe ſuch bitter things to my patients, for the uſe of them is much more troubleſome than any way good and advantagious. But at the length this patient by this and the like meanes recovered his health beyond my expectation.

Why bitter things muſt not be caſt in to the Cheſt.

Reade the Hiſtory of *Maryllus* in *Galen, lib. 7. de Anatom. adminiſtra.*

But on the contrary, I was called on a time to a certaine *Germaine* gentleman who was runne with a ſword into the capacity of his Cheſt; the neighbouring Chirurgion had put a great tent into the wound at the firſt dreſſing, which I made to bee taken forth, for that I certainly underſtood there was no blood powred forth into the capacity of the Cheſt becauſe the patient had no feaver, no weight upon the *diaphragma*, nor ſpitted forth any blood. Wherefore I cured him in few dayes by onely dropping in ſome of my balſame and laying a plaſter of *Diacalcitheos* upon the wound.

What harme enſues the too long uſe of tents.

The like cure I have happily performed in many others. To conclude, this I dare boldly affirme, that wounds of the Cheſt by the too long uſe of tents degenerate into Fiſtula's.

Wherefore if you at any time ſhall undertake the cure of wounds] which penetrate in the to capacity of the Cheſt, you ſhall not preſently ſhut them up at the firſt dreſſing, but keep them open for two or three dayes; but when you ſhal finde that the patient is troubled with no or very little paine, and that the midriffe is preſſed downe with no weight, and that he breathes freely, then let the tent be taken forth, and the wound healed up as ſpeedily as you can by covering it onely with lint dipped in ſome balſame which hath a glutinative faculty, and layd ſomewhat broader than the wound; never apply liniments to wounds of this kinde, leſt the patient by breathing draw them into the capacity of the Cheſt. Whereſore alſo you muſt have

No liniments muſt be uſed in wounds of the Cheſt.

a care that the tent put into thoſe kindes of wounds may be faſtened to the Pledgets, and alſo have ſomewhat a large head, leſt they ſhould be drawne as we ſayd into the capacity of the Cheſt, for if they fall in, they will cauſe putrifaction and death.

Let *Emplaſt. Diacalcitheos* or ſome ſuch like bee applyed to the wound. But if, on the contrary, you know by proper, and certaine ſignes, that there is much blood fallen into the ſpaces of the Cheſt, then let the orifice of the wound bee kept open with larger tents, untill all the *Sanies* or bloody matter, wherein the blood hath degenerated, ſhall bee exhauſted. But if it happen at any time, as aſſuredly it ſometimes doth, that notwithſtanding the Art and care of the Phyſition, the wound degenerates into a *Fiſtula*, then the former evill is become much worſe. For *Fiſtula's* of the Cheſt, are ſcarſe cured at any time, and that for divers cauſes. The firſt is, for that the muſcles of the Cheſt are in perpetuall motion; Another is, becauſe they on the contrary inſide are covered onely with the membrane inveſting the ribbes, which is without blood. The third is, for that the wound hath no ſtay, by meanes whereof it may be compreſſed, ſowed, and bound, whereby the lips being joyned together, the wound may at length be repleniſhed with fleſh, and cicatrized.

Wounds of the Cheſt eaſily degenerate into a *Fiſtula*.

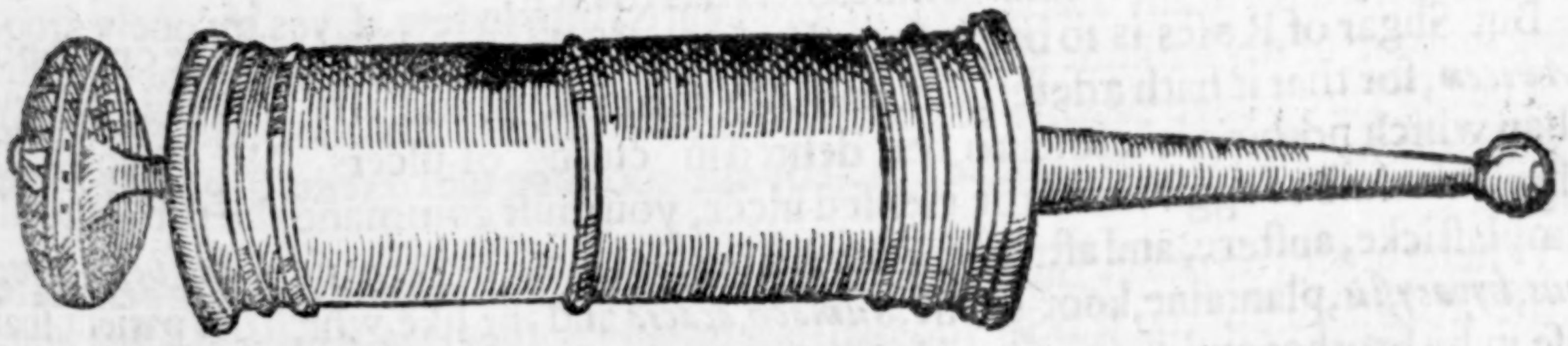
But the reaſon why wounds of the Cheſt doe every day heape up and poure forth ſo great a quantity of matter, ſeemes to be their vicinity to the heart, which being the fountaine of blood, there is a perpetuall effluxe thereof from thence to the part affected. For this is natures care in preſerving the affected parts, that continually and aboundantly without meaſure or meane it ſends all its ſupplyes, that is, blood and ſpirits, to the ayde. Ad hereto, that the affected parts by paine, heate and continuall motion of the Lungs and midriffe, draw and allure much blood to themſelves. Such like blood defiled by the malignity and filth of the wound, is ſpeedily corrupted; whence it is that from the perpetuall affluxe of blood, there is a continuall effluxe of matter or filth, which at the laſt brings a man to a conſumption; becauſe the ulcerated part like a ravenous wolfe conſumes more blood by the paine, heate and motion than can be miniſtred thereto by the heart. Yet if there bee any hope to cure and heale the *Fiſtula*, it ſhall bee performed, (after the uſe of diet, phlebotomie, and according to the preſcript of the Phyſition) by a vulnerary potion, which you ſhall finde deſcribed when we treate of the *Caries* or rottenneſſe of the bones. Wherefore you ſhall make frequent injections therewith into the *Fiſtula*, adding and mixing with it *ſyrupus de roſis ſiccis* and *mel roſarum*. Neither doe I, if the putrefaction bee great, feare to mixe therewith *Ægyptiacum*. But you muſt have a care to remember and obſerve the quantity of the injected liquor, that you may know whether it all come forth againe after it hath performed its detergent office. For if any thereof remaine behinde in the corners and crooked paſſages, it hurts the part, as corrupted with the contagion thereof.

Why there flowes ſuch plenty of matter out of wounds of the Cheſt.

The cure of a *Fiſtula* in the Cheſt.

When *Ægyptiacum* muſt be put into the injections.

The forme of a Syring fit to make injection, when a great quantity of liquor is to be injected into any part.



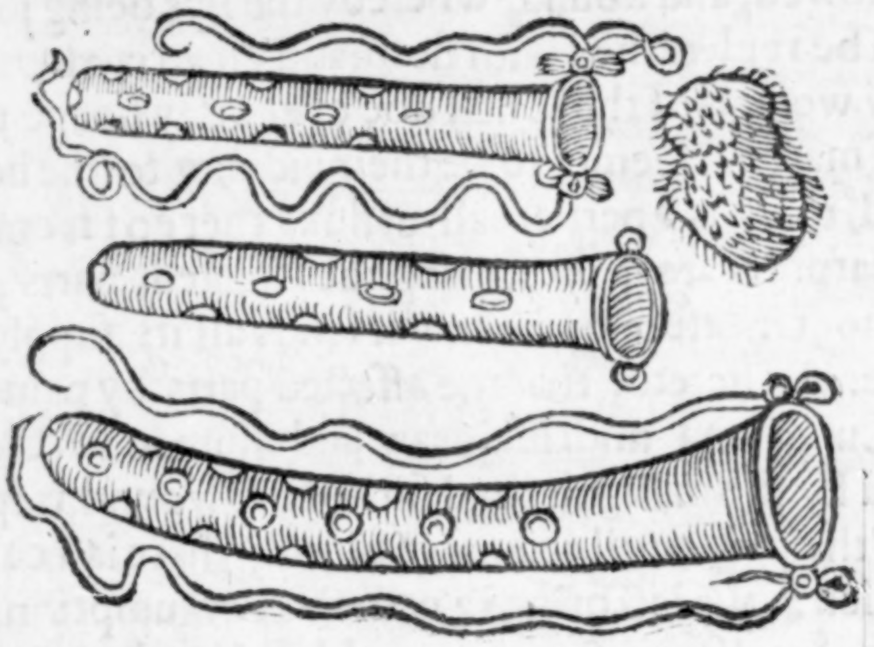
After the injected liquor is come forth, a pipe of gold, ſilver or lead, ſhall bee put into the fiſtulous ulcer; and it muſt have many holes in it, that ſo the filth may paſſe forth at them; it muſt be faſt tyed with ſtrings, that it may not fall into the capacity of the Cheſt.

A great ſpunge ſteeped in *aqua vitæ* and wrung forth againe, ſhall bee layd hot to the end or orifice thereof, both to hinder the entrance of the ayre into the Fiſtulous ulcer, as alſo to draw forth the filth thereof by its gentle heate, the which thing the

Patient ſhall much further if often times both day and night hee hold his breath, ſtopping his mouth and noſe, and lying upon the diſeaſed ſide, that ſo the *Sanies* may bee the more forcibly evacuated; neither muſt wee leave putting in the pipe, before that this fiſtulous ulcer ſhall bee almoſt dry, that is, whole, as when it yeelds little, or no matter at all; then it muſt be cicatrized. But if the orifice of this fiſtulous ulcer being in the upper part hinder the healing thereof, then by a chirurgicall Section a paſſage ſhall be made in the bottome, as we ſayd before in an *Empyema*.

The delineation of the pipes with their ſtrings and ſpunges.

The reader muſt note that the pipes which are fit for this uſe, neede not have ſo many holes as theſe here expreſt; but onely two or three in their ends: for the fleſh growing and getting into the reſt, make them that they cannot be plucked forth without much paine.



What wounds of the Lungs cureable.

A wound made in the Lungs admits cure, unleſſe it bee very large; if it bee without inflammation; if it bee on the skirts of the Lungs, and not on their upper parts; if the patient conteine himſelfe from coughing much, and contentious ſpeaking, and great breathing: for the wound is enlarged by coughing, and thence alſo ariſes inflammation; the *Pus* and *Sanies* whereof, whilſt the lungs againe endeavour to expell by couching, by which meanes they are onely able to expell that which is hurtfull and troubleſome to them, the vulcer is dilated, the inflammation augmented, the Patient waſtes away, and the diſeaſe becomes incureable.

The harme that enſues upon coughing in wounds of the Lungs.

How *Eclegma's* muſt be ſwallowed.

There have beene many *Eclegma's* deſcribed by Phyſitions for to clenſe the ulcer; which when the patient uſeth, he ſhall lye on his backe, to keepe them long in his mouth, ſo to relaxe the muſcles of the *Larinx*; for thus the medicine will fall by little and little alongſt the coates of the Weazon, for if it ſhould fall downe in great quantity, it would be in danger to cauſe coughing. Cowes, Aſſes, or Goates milke with a little honey, leaſt they ſhould corrupt in the ſtomacke, are very fit remedies for this purpoſe; but womans milke exceedes the reſt.

The utility of Sugar of roſes in ulcerated or wounded Lungs.

But Sugar of Roſes is to be preferred before all other medicines, in the opinion of *Avicen*, for that it hath a detergent, and alſo an aſtrictive and ſtrengthening faculty, than which nothing is more to bee deſired in curing of ulcers. When you ſhall thinke it time to agglutinate the clenſed ulcer, you muſt command the patient to uſe emplaſticke, auſtere, and aſtringent medicines, ſuch as are *Terra ſigillata, bolus armenus, hypocyſtis*, plantaine, knot-graſſe, *Sumach, acacia* and the like, which the patient ſhall uſe in his brothes and *Eclegma's*, mixing therewith honey of roſes, which ſerving for a vehicle to the reſt, may carry away the impacted filth which hinders agglutination. But ſeeing an hecticke feaver eaſily follows upon theſe kindes of wounds, and alſo upon the affects of the Cheſt and lungs, it will not be amiſſe to ſet downe ſomewhat concerning the cure thereof, that ſo the Chirurgion may know to adminiſter ſome helpe to his patient, whilſt a Phyſition is ſent for, to overcome this diſeaſe with more powerfull and certaine remedies.

CHAP.

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CHAP.

CHAP. XXXII.

Of the differences, cauſes, ſignes and cure of an Hecticke feaver.

The reaſon of the name.

A Hecticke feaver is ſo called; either for that it is ſtubborne and hard to cure and looſe, as things which have contracted a habite; for *Hexis* in Greeke ſignifies a habite; or elſe for that it ſeazes upon the ſolide parts of our bodies called by the Greekes *Hexeis*; both which the Latine word *Habitus* doth ſignifie.

The differences thereof.

There are three kindes, or rather degreees of this feaver. The firſt is when the hecticke heate conſumes the humidity of the ſolide parts. The ſecond is, when it feeds upon the fleſhy ſubſtance. The third and uncureable is, when it deſtroyes the ſolide parts themſelves. For thus the flame of a lampe firſt waſtes the oyle, then the proper moyſture of the weeke. Which being done there is no hope of lighting it againe what ſtore of oyle ſoever you poure upon it. This feaver very ſeldome breeds of its ſelfe, but commonly followes after ſome other.

The cauſes.

Wherefore the cauſes of a hecticke feaver are, ſharpe and burning feavers not well cured, eſpecially if their heate were not repreſſed with cooling epithemes applyed to the heart and *Hypochondria*. If cold water was not fitly drunke. It may alſo ſucceede a Diary feaver which hath bin cauſed and begun by ſome long, great and vehement greef or anger, or ſome too violent labour, which any of a ſlender and dry body hath performed in the hot ſunne. It is alſo oft times cauſed by an ulcer or inflammation of the Lungs, an *empyema* of the Cheſt, by any great and long continuing *Phlegmon* of the liver, ſtomacke, meſentery, wombe, kidneyes, Bladder, of the guts *Iejunum* and *Colon*, and alſo of the other Guts, of if the *Phlegmon* ſucceed ſome long *Diarrhœa*, *Lienteria* or bloody flix; whence a conſumption of the whole body, and at laſt a hecticke feaver, the heate becomming more acride, the moyſture of the body being conſumed.

The ſignes.

This kinde of feaver as it is moſt eaſely to bee knowne, ſo is it moſt difficult to cure; the pulſe in this feaver is hard, by reaſon of the dryneſſe of the Artery which is a ſolide part; and it is weake by reaſon of the debility of the vitall faculty, the ſubſtance of the heart being aſſaulted. But it is little and frequent becauſe of the diſtemper and heate of the heart, which for that it cannot by reaſon of its weakeneſſe cauſe a great pulſe to coole its ſelfe, it labours by the oftenneſſe to ſupply that defect.

Why in hecticks the heate is more acride after meate.

But for the pulſe, it is a proper ſigne of this feaver, that one or two houres after meate the pulſe feeles ſtronger than uſuall; and then alſo there is a more acride heate over all the patients body. The heate of this flame laſts untill the nouriſhment bee diſtributed over all the patients body; in which time the dryneſſe of the heart in ſome ſort tempered and recreated by the appulſe of moyſt nouriſhment, the heate increaſes no otherwiſe than lime which a little before ſeemed cold to the touch, but ſprinkled and moyſtned with water growes ſo hot, as it ſmoakes and boyles up. At other times there is a perpetuall equallity of heate and pulſe in ſmalneſſe, faintneſſe, obſcurity, frequency, and hardneſſe, without any excerbation, ſo that the patient cannot thinke himſelfe to have a feaver, yea hee cannot complaine of any thing, hee feeles no paine, which is another proper ſigne of an hecticke feaver.

The ſignes of a hecticke ioyned with a putride feaver.

The cauſe that the heate doth not ſhew its ſelfe is, it doth not poſſeſſe the ſurface of the body, that is, the ſpirits and humors, but lyes as buried in the earthy groſſeneſſe of the ſolide parts. Yet if you hold your hand ſomewhat long, you ſhall at laſt perceive the heate more acride and biting, the way being opened thereto by the ſkinne rarifyed by the gentle touch of the warme and temperate hand. Wherefore if at any time in theſe kinde of feavers the Patient feele any paine, and perceive himſelfe troubled with an inequality and exceſſe of heate, it is a ſigne that the hecticke feaver is not ſimple, but conjoyned with a putride feaver, which cauſeth ſuch inequality, as the heate doth more or leſſe ſeaze upon matter ſubject to putrefaction; for a hecticke feaver of its ſelfe is void of all equality, unleſſe it proceede from ſome externall cauſe, as from meate; Certainely if an Hippocratique face may be found in any diſeaſe, it may in this, by reaſon of the colliquation, or waſting away the triple ſubſtance.

The cure.

In the cure of this diſeaſe, you muſt diligently obſerve with what affects it is entangled, and whence it was cauſed. Wherefore firſt you muſt know whether this feaver be a diſeaſe; or elſe a ſymptome. For if it be ſymptomaticall it cannot be cured; as long as the diſeaſe the cauſe thereof, remaines uncured; as if an ulcer of the guts occaſioned by a bloody flixe ſhall have cauſed it, or elſe a fiſtulous ulcer in the Cheſt cauſed by ſome wound received on that part, it will never admit of cure, unleſſe firſt the fiſtulous or dyſenterick ulcer ſhall be cured; becauſe the diſeaſe feedes the ſymptomes, as the cauſe the effect. But if it be a ſimple and eſſentiall hecticke feaver, for that it hath its eſſence conſiſting in an hot and dry diſtemper, which is not fixed in the humors, but in the ſolide parts, all the counſell of the Phyſition muſt be to renue the body, but not to purge it; for onely the humors require purging, and not the defaults of the ſolide parts. Therefore the ſolide parts muſt bee refrigerated and humected; which wee may doe by medicines taken inwardly and applyed outwardly.

A ſymptomaticall hecticke.

An eſſentiall hecticke.

Things to bee taken inwardly.

The things which may with good ſucceſſe bee taken inwardly into the body for this purpoſe, are medicinall nouriſhments. For hence we ſhall finde more certaine and manifeſt good, than from altering medicines, that is, wholly refrigerating and humecting without any manner of nouriſhment.

The benefit of medicinall nouriſhments.

For by reaſon of that portion fit for nutriment which is therewith mixed, they are drawne and carried more powerfully to the parts, and alſo converted into their ſubſtance: whereby it comes to paſſe that they doe not humect and coole them lightly and ſuperficially, like the medicines which have onely power to alter and change the body, but they carry their qualities more throughly even into the innermoſt ſubſtance.

Of theſe things ſome are herbes, as violets, purſlaine, bugloſſe, endive, duckſ-meat, or water lentill, mallowes, eſpecially when the belly ſhall be bound. Some are fruits, as gourds, cowcumbers, apples, prunes, raiſons, ſweete almonds, and freſh or new pine-apple kernells. In the number of ſeedes are the foure greater and leſſer cold ſeedes, and theſe new, for their native humidity, the ſeedes of poppyes, berberries, quinces. The floures of bugloſſe, violets, water lillies, are alſo convenient; of all theſe things let broth be made with a chicken, to bee taken in the morning for eight or nine dayes, after the firſt concoction.

The choyce of meates.

For meates; in the beginning of the diſeaſe, when the faculties are not too much debilitated, hee ſhall uſe ſuch as nouriſh much and long, though of hard digeſtion; ſuch as the extreame parts of beaſts, as the feete of Calves, Hoggs feete not ſalted, the fleſh of a Tortois, which hath lived ſo long in a garden, as may ſuffice to digeſt the excrementitious humidity; the fleſh of white Snailes, and ſuch as have beene gathered in a vineyard, of frogs, river Crabs, Eeles taken in cleere waters and; wel cooked, hard egges eaten with the juice of Sorrell without ſpices; Whitings and ſtockfiſh. For al ſuch things becauſe they have a tough and glutinous juice, are eaſily put & glutinated to the parts of our body, neither are they ſo eaſily diſſipated by the feaveriſh heat. But when the patient languiſheth of a long hectick, he muſt feede upon meats of eaſiy digeſtion, and theſe boyled rather than roaſted; for boyled meats humect more, and roaſted more eaſily turne into choler. Wherefore hee may uſe to eate Veale, Kid, Capon, Pullet, boyled with refrigerating and humecting hearbes; hee may alſo uſe Barly creames, Almond milkes, as alſo bread crummed and moyſtened with roſe water and boyled in a decoction of the foure cold ſeedes with ſugar of roſes; for ſuch a Panada cooles the liver, and the habite of the whole body, and nouriſheth withall.

The Teſticles, wings, and livers of young cockes, as alſo figges and raiſons. But if the patient at length begin to loathe and grow weary of boyled meates, then let him uſe roaſt, but ſo that he cut away the burnt and dryed part thereof, and feed onely on the inner part thereof, and that moyſtned in roſe water, the juice of Citrons, Oranges or Pomegranats. Let him abſtaine from ſalt and dry fiſhes, and chuſe ſuch fiſhes as live in ſtony waters, for the exerciſe they are forc'd to undergoe in ſhunning the

rockes

How Aſſes milke muſt be uſed in a hectick.

rockes beaten upon by the waves. Aſſes milke newly milked and ſeaſoned with a little ſalt, ſugar, honey, or fennell, that it may not corrupt, nor grow ſowre in the ſtomacke; or womans milke ſucked from the dug by the patient, to the quantity of halfe a pint is much commended; verily womans milke is the more wholſome, as that which is more ſweet and familiar to our ſubſtance, if ſo be that the nurſe be of a good temper and habite of body. For ſo it is very good againſt the gnawings of the ſtomacke, and ulcers of the Lungs, from whence a Conſumption often proceeds. Let your milch Aſſe be fed with barly, oates, oake leaves; but if the patient chance to bee troubled with the fluxe of the belly, you ſhall make the milke ſomewhat aſtringent, by gently boyling it, and quenching therein pebble ſtones heated red hot. But for that all natures cannot away with Aſſes milke, ſuch ſhall abſtaine from it, as it makes to have acrid belchings, difficulty of breathing, a heate and rumbling in the *Hypochondria*, and paine of the head. Let the patient temper his wine with a little of the waters of Lettuce, purſlaine and water-lillies, but with much bugloſſe water, both for that it moyſtens very much; as alſo for that it hath a ſpecificke power to recreate the heart, whoſe ſolide ſubſtance in this kinde of diſeaſe is greivouſly afflicted. And thus much of things to be taken inwardly.

Womans milk more wholſome than Aſſes.

Things to be outwardly applyed.

Theſe things which are to be outwardly applyed, are inunctious, bathes, epithemes, clyſters. Inunctions are divers, according to the various indication of the parts whereto they are applyed. For *Galen* annoints all the ſpine with cooling & moderate aſtringent things, as which may ſuffice to ſtrengthen the parts, and hinder their waſting, and not let the tranſpiration; for if it ſhould bee letted, the heate would become more acride, by ſuppreſſing the vapours. Oyle of roſes, water lillies, Quinces, the mucilages of Gumme tragacanth and arabicke extracted in water of nitghſhade, with ſome ſmall quantity of camphire, and a little waxe if neede require; but on the contrary, the parts of the breaſt muſt be annoynted with refrigerating and relaxing things; by refrigerating I meane things which moderately coole, for cold is hurtfull to the breaſt. But aſtringent things would hinder the motion of the muſcles of the cheſt, and cauſe a difficulty of breathing. Such inunctions may be made of oyle of Violets, willowes, of the ſeeds of lettuce, poppyes, water-lillyes, mixing with them the oyle of ſweete almonds to temper the aſtriction which they may have by their coldneſſe. But you muſt have great care that the Apothecarie for covetouſneſſe in ſteed of theſe oiles newly made give you not old, rancide and ſalted oiles, for ſo in ſteed of refrigerating, you ſhall heate the part; for wine, honey and oyle acquire more heate by age; in defect of convenient oyles, we may uſe butter well waſhed in violet and nightſhade water. The uſe of ſuch inunctions, is to coole, humect and comfort the parts whereto they are uſed; they muſt be uſed evening and morning, chiefely after a bath.

A caution in the choyſe of Oyles.

The differences of bathes.

Now for Bathes, we preſcribe them either onely to moyſten, and then plaine warme water wherein the flowres of Violets and water lillyes, willow leaves and barly have beene boyled, will be ſufficient; or elſe not onely to moyſten, but alſo to acquire them a fairer and fuller habite, and then you may adde to your bath the decoction of a ſheepes head and Gather, with ſome butter. But the patient ſhall not enter into the bath faſting, but after the firſt concoction of the ſtomack, that ſo the nouriſhment may be drawne by the warmeneſſe of the bath into the whole habite of the body, for otherwiſe he which is ſicke of a conſumption and ſhall enter the bath with his ſtomacke empty, ſhall ſuffer a greater diſſipation of the triple ſubſtance, by the heate of the bath, than his ſtrength is well able to endure. Wherefore it is fit thus to prepare the body, before you put it into the bath. The day before in the morning let him take an emollient clyſter, to evacuate the excrements baked in the guts by the hecticke dryneſſe; then let him eate to his dinner ſome ſolide meats about nine of the clocke; and let him about foure of the clocke eate ſomewhat ſparingly, meates of eaſie digeſtion to his ſupper. A little after midnight let him ſup of ſome chicken broth or barly creame, or elſe two reare egges tempered with ſome roſe water and ſugar of roſes in ſteed of ſalt. Some 4. or 5. hours after, let him enter into the bath, theſe things which I have ſet downe, being obſerved. When he comes out of the bath, let him be dryed and gently rubbed, with ſoft linnen cloathes, and annointed as I formerly

Why the patients muſt not enter the Bath faſting.

How to prepare the body for the Bath.

Things ſtrengthening the ventricle.

Epithemes.

ly preſcribed, then let him ſleepe if he can for two or three houres in his bed: when he wakes let him take ſome Ptiſan, or ſome ſuch like thing, and then repeate his bath after the foreſayd manner. He ſhall uſe this bath thrice in ten dayes; But if the patient be ſubject to crudities of the ſtomacke, ſo that hee cannot ſit in the bath without feare of ſowning and ſuch ſymptomes, his ſtomacke muſt be ſtrengthened with oyle of Quinces, Wormewood and Maſtich, or elſe with a cruſt of bread toſted, and ſteeped in muskedine, and ſtrewed over with the powders of Roſes, Sanders, and ſo layd to the ſtomacke, or behinde neare to the thirteenth *vertebra* of the backe, under which place, Anatomie teaches, that the mouth of the ſtomacke lyes. Epithemes ſhall be applyed to the liver and heart, to temper the too acride heate of theſe parts, and correct the immoderate dryneſſe by their moderate humidity.

What a fluxe happening in a hecticke feaver indicates.

How children be cured,

Now they ſhall be made of refrigerating and humecting things, but chiefely humecting; for too great coldneſſe would hinder the penetration of the humidity into the part lying within. The waters of Bugloſſe, and Violets, of each a quarterne with a little white wine is convenient for this purpoſe. But that which is made of French barly, the ſeedes of gourds, pompions, or Cowcumbers of each three drams in the decoction, and mixed with much tempering with oyle of Violets, or of ſweete almonds, is moſt excellent of all other. Let clothes be dipped and ſteeped in ſuch epithemes, and layd upon the part, and renued as oft as they become hot by the heate of the part. And becauſe in hecticke bodies, by reaſon of the weakeneſſe of the digeſtive facultie, many excrements are uſually heaped up, and dryed in the guts, it will be convenient, all the time of the diſeaſe to uſe frequently gliſters made of the decoction of cooling and humecting hearbes, flowres, and ſeedes wherein you ſhall diſſolve *Caſsia* with ſugar and oyle of Violets, or water-lillies. But becauſe there often happen very dangerous fluxes in a confirmed hecticke feaver, which ſhew the decay of all the faculties of the body, and waſting of the corporaell ſubſtance, you ſhall reſiſt them with refrigerating and aſiſting medicines; and meates of groſſer nouriſhment, as Rice, and Cicers; and application of aſtringent and ſtrengthening remedies; and uſing the decoction of Oates or parched barly for drinke. Let the patient be kept quiet and ſleeping as much as may be, eſpecially if he be a child.

For this feaver frequently invades children by anger, great and long feare, or the too hot milke of the nurſe, overheating in the Sunne, the uſe of wine and other ſuch like cauſes; they ſhall be kept in a hot and moyſt ayre, have another Nurſe, and bee anoynted with oyle of violets; to conclude, you ſhall apply medicines which are contrary to the morbificke cauſe.

Chap. XXXIII.

Of the wounds of the Epigaſtrium *and of the whole lower belly.*

Their differences.

Signes of a wounded liver.

THe wounds of the lowerbelly are ſometimes before, ſometimes behind, ſome onely touch the ſurface thereof, others enter in; ſome paſſe quite through the body, ſo that they often leave the weapon therein, ſome happen without hurting the conteined parts; others grievouſly offend theſe parts, the liver, ſpleene, ſtomacke, guts, kidneyes, wombe, bladder, ureters, and great veſſells, ſo that oft times a great portion of the Kall falls forth. We know the Liver is wounded, when a great quantity of blood comes forth of the wound, when a pricking paine reaches even to the ſwordlike griſtle, to which the Liver adheares. Oft times more choler is caſt up by vomit, and the patient lyes on his belly with more eaſe, and content.

Signes that the ſtomacke and ſmaller guts are wounded.

Signes to know when the greater guts are wounded,

When the ſtomacke or any of the ſmall guts are wounded, the meate and drinke break out at the wound, the *Ilia* or flankes ſwell and become hard, the hicket troubles the patient, and oft times he caſts up more choler, and greevous paine wrings his belly, and hee is taken with cold ſweates, and his extreme parts waxe cold.

If any of the greater gutts ſhall bee hurt, the excrements come forth at the wound:

When the Spleene is wounded, there flowes out thicke and blacke blood, the patient is oppreſſed with thirſt, and there are alſo the other ſignes, which wee ſayd uſe to accompany the wounded Liver. A difficulty of making water troubles the patient whoſe reines are wounded, blood is piſſed forth with the Vrine, and he hath a paine ſtretched to his groines and the regions of the Bladder and Teſticles.

Signes that the Kidneyes are hurt.

Signes that the Bladder is wounded.

The Bladder or Vreters being wounded, the flankes are pained, and there is a Tenſion of the *Pecten* or ſhare, blood is made in ſtead of vrine, or elſe the vrine is very bloody, which alſo divers times comes forth at the wound. When the wombe is wounded, the blood breakes forth by the privities, and the Symptomes are like thoſe of the Bladder.

Signes that the wombe is wounded.

Prognoſticks.

The wounds of the liver are deadly, for this part is the worke houſe of the blood, wherefore neceſſarie for life; beſides by wounds of the liver the branches of the Gate or Hollow veines are cut, whence enſues a great flux of blood not onely inwardly, but alſo outwardly, and conſequently a diſſipation of the ſpirits and ſtrength.

But the blood which is ſhed inwardly amongſt the bowels putrefies and corrupts, whence followes paine, a feaver, inflammation, and laſtly death. Yet *Paulus Ægineta* writes, that the lobe of the Liver may be cut away without neceſſary conſequence of death. Alſo the wounds of the Ventricle and of the ſmall Guts, but chiefely of the *Iejunum* are deadly; for many veſſells runne to the *Iejunum* or empty Gut, and it is of a very nervous and ſlender ſubſtance, and beſides it receives the cholericke humour from the bladder of the Gall. So alſo the wounds of the Spleene, Kidneyes, Vreters, Bladder, Womb and Gall, are commonly deadly, but alwayes ill, for that the actions of ſuch parts are neceſſary for life; beſides, divers of theſe are without blood and nervous, others of them receive the moiſt excrements of the whole body, and lie in the innermoſt part of the body, ſo that they doe not eaſily admit of medicines. Furthermore, all wounds which penetrate into the capacitie of the belly, are judged very dangerous, though they doe not touch the conteined bowells; for the encompaſſing and new ayre entring in amongſt the bowells, greatly hurts them, as never uſed to the feeling thereof; adde hereto the diſſipation of the ſpirits which much weakens the ſtrength. Neither can the filth of ſuch wounds be waſted away according to the minde of the Chirurgion, whereby it happens, they divers times turne into Fiſtula's, as we ſaide of wounds of the Cheſt, and ſo at length by collection of matter cauſe death. Yet I have dreſſed many who by Gods aſſiſtance and favour have recovered of wounds paſſing quite through their bodies.

Lib.6.cap.88.

A Hiſtorie.

I can bring as a witneſſe the ſteward of the Portingall Embaſſadour, whom I cured at *Melun*, of a wound made with a ſword ſo running through his body, that a great quantity of excrements came forth of the wounded Guts, as he was a dreſſing, yet he recovered.

Another Hiſtorie.

Not long agone *Giles le Maiſtre* a Gentleman of *Paris* was runne quite through the body with a Rapier, ſo that he voyded much blood at his mouth and fundament divers dayes together, whereby you know the Guts were wounded; and yet he was healed in twenty dayes. In like ſort the wounds of the greater veſſells are mortall, by reaſon of the great effuſion of blood and ſpirits which enſues thereupon.

Chap. XXXIIII.

The cure of wounds of the lower belly.

The firſt cogitation in curing of theſe wounds ought to be whether they pierce into the capacitie of the Belly; for thoſe which paſſe no further than to the *Peritonæum* ſhall be cured like ſimple wounds which onely requre union. But thoſe which enter into the capacity muſt be cured after another manner. For oft times the Kall or Guts, or both fall forth at them.

The cure of a wounded Gut.

A gut which is wounded muſt be ſowed up with ſuch a ſeame as Furriers or Glovers uſe, as we formerly told you; and then you muſt put upon it a pouder made of

Maſtich, Myrrhe, Aloes and Bole. Being ſowed up, it muſt not bee put up boyſterouſly together and at once into its place, but by little and little, the Patient lying on the ſide oppoſite to the wound. As for example, the right ſide of the Guts being wounded and falling out by the wound, the Patient ſhall lye on his left ſide, for the more eaſy reſtoring of the fallne downe Gut, and ſo on the contrary. If the lower part of the Guts being wounded ſlide through the wound, then the Patient ſhall lye with his head low downe, and his buttocks raiſed up by putting a pillow under them; If the upper part be hurt, then muſt he lye quite contrary, that the Guts falling downewards by ſuch a ſite, may give way to theſe which are fallne out through the wound. But often in this caſe, the Guts having taken cold by the encompaſſing aire, ſwell up & are diſtended with winde, the which you muſt diſcuſſe before you put them into their place, with a fomentation of the decoction of camomill, melilote, aniſeeds and fennell applyed with a ſpunge, or contained in a bladder; or elſe with chickens, or whelpes cut alive in the midſt and layd upon the ſwelling; for thus they doe not onely diſcuſſe the flatulency, but alſo comfort the afflicted part. But if the inflation cannot thus be diſcuſſed, the wound ſhall be dilated, that ſo the Guts may returne the more freely to their place.

The cure when the Kall falls out.

Hip. Aph. 58. ſect. 6.

If the Kall ſhall fall out, it muſt be ſpeedily reſtored to its place, for it is very ſubject to putrifie; for the fat, whereof for the moſt part it conſiſts, being expoſed to the aire, eaſily looſes its native heate, which is ſmall and weake, whence a mortification enſues. Hence is that of *Hippocrates*; If the Kall fall out, it neceſſarily putrifies. The Chirurgion ſhall know whether it putrifie, or not, by the blackneſſe and the coldneſſe you may perceive by touching it; neither muſt you when it putrifies preſently reſtore it to its place, for ſo the contagion of the putrifaction would ſpread to the reſt of the parts: but what ſoever thereof is putrefied ſhall be twitched and bound hard with a ſtring and ſo cut off, and the reſt reſtored to his proper place: but its good after cutting of it away to leave the ſtring ſtill hanging thereat, that ſo you may plucke and draw forth whatſoever thereof may by being too ſtraight bound fall away into the capacity of the belly. Some thinke it to be better to let the Kall thus bound to hang forth untill that portion thereof which is putrified fall away of it ſelfe, and not to cut it off. But they are much deceived, for it hanging thus would not cover the guts, which is the proper place. The Guts and Kall being put up, if the wound be great and worth ſpeaking of, it muſt be ſowed with that ſuture which is termed *Gaſtroraphia*; but this kind of ſuture is thus made. The needle at the firſt putting in muſt onely take hold of the *peritonæum*, & then on the oppoſite ſide onely of the fleſh, letting the *peritonæum* alone, and ſo goe along putting the needle from without inwards, and from within outwards, but ſo that you onely take the muſculous fleſh and ſkinne over it, and then onely the *peritonæum*, untill you have ſowed up all the wound. Hee which doth otherwiſe ſhall undergoe this danger, that whereas the coate *peritonæum* is of it ſelfe without blood, it being devided, or wounded cannot of it ſelfe be united to it ſelfe, therefore it requires an intercourſe of fleſh: otherwiſe unleſſe it be thus united by the benefit of the fleſh intermixed therewith, there would remaine an uncurable Tumour after the wound is cicatrized on the outſide.

Lib. 6. Meth. cap. 4.

But that which wee ſayd before according to *Galens* minde, that all the wounds muſt be ſowed, it is not ſo to be taken as if that the wound muſt be ſowed up to the very end; for in the lower part of the wound there muſt be left a certaine ſmall vent by which the quitture may paſſe forth, which being wholly clenſed and exhauſted, the wound muſt be quite healed up. But the wounds which ſhall penetrate into the ſubſtance of the liver, ſpleene, ventricles, and other bowells, the Chirurgion ſhall not ſuffer them to be without medicines as if they were deſperate, but here ſhall ſpare neither labour nor care to dreſſe them diligently. For doubtfull hope is better than certaine deſpaire. The bladder, wombe, and right gut being wounded, detergent and agglutinative injections ſhall be put up by their proper paſſages. I have read nothing as yet in any author of the wounds of the Fat, for all of them referre the cure thereof to the wounds of the Muſcles.

The cure of the wounded fat.

Yet I will ſay this by the way, that wounds of the fat how deepe ſoever they be, if they be onely ſimple, may be dreſſed without putting in of any Tent, but onely dropping in ſome of my balſame, and then laying upon it a plaiſter of *Gratia Dei*, or ſome ſuch like, for ſo they will heale in a ſhort time.

CHAP.

Chap. XXXV.

Of the wounds of the Groines, Yard and Teſticles.

WHen the Groines and neighbouring parts are wounded, we muſt firſt conſider whether they pierce to within: and if they doe penetrate, to what inward parts the come, whether to the bladder, the wombe, or right gut: for theſe parts are ſuch neare neighbours that oft times they are all wounded with one blow. But for the wounds of the Teſticles, and genitall parts, becauſe they are neceſſary inſtruments for the preſerving the *ſpecies* by generation, or a ſucceſſion of individualls, and to keepe all things quiet at home, therefore the Chirurgion ought to be very diligent and carefull for their preſervation. Wherefore if they ſhould chance at any time to be wounded, they ſhall be dreſſed as we have formerly delivered, the medicines being varyed according to the ſtate of the wound, and the appearing and happening ſymptomes; for it would be a thing of immenſe labour to handle all things in particular.

Chap. XXXVI.

Of the Wounds of the Thighes and Legges.

Why wounds of the inſide of the Thigh are oft times deadly.

WOunds which have beene received on the inſide of the Thighes, have often cauſed ſuddaine death, if they have come to the veine *Saphena*, or the great Artery, or the Nerves the aſſociates of theſe veſſells. But when they are ſimple, there is nothing which may alter the uſuall manner of cure. Yet the patient muſt be carefull to lye in his bed: for the vulgar Italian proverbe is true. *La mano al petto, la gamba al letto,* [that is, the hand on the breaſt, and the legge on the bed.] But when they penetrate more deepely into the ſubſtance of the part, they bring horrid and fearefull ſymptomes, as an inflammation, an abſceſſe, from whence oft times ſuch aboundance of matter iſſues forth, that the Patient falls into an *Atrophia* and conſumption. Wherefore ſuch wounds and ulcers require a carefull and induſtrious Chirurgion, who may fitly make inciſions neceſſary for the corrupt parts, and calloſity of the fiſtulous ulcer. Some Chirurgions have beene ſo bold as to ſowe together the end of the Tendons of the Ham, and of other joynts, when they have beene quite cut aſunder. But I durſt never attempt it for feare of paine, convulſions and the like horrid ſymptomes. For the wounds of that large Tendon which is compoſed in the calfe of the Legge by the concourſe of three muſcles, and goes to the heele, I have obſerved that when it hath beene cut with a ſword, that the wounds have beene long and hard to cure; and beſides when at the laſt they have beene healed, as ſoone as the Patient hath got out of his bed, and endeavoured to goe, they have growne ill and broke open againe. Wherefore in ſuch like wounds let the Patient have a care that he begin not to goe, or too boldly to uſe his hurt leg before it be perfectly cicatrized and the ſcarre growne hard. Therefore that the patient may be in more ſafety, I judge it altogether neceſſary, that he uſe to goe with Crutches, for a good while after the wound is perfectly healed up.

The large Tendon of the heele hard to conſolidate.

Chap. XXXVII.

Of the wounds of the Nerves, and nervous parts.

Differences drawne from things wounding.

THe continuity of the nervous parts is divers wayes looſed by the violent incurſion of externall things; as by things which contuſe, batter and grinde in ſunder, as by the blow of a ſtone, cudgell, hammer, lance, bullet out of a gun, or croſſebow; by the biting of greater teeth; or the pricking of ſome ſharpe thing, as a needle, bodkin, penknife, arrow, ſplinter; or the puncture of ſome venemous thing, as of a Sea Dragon; or the edge of ſome cutting thing, as a ſword or Rapier; or of ſtretching things which violently teare aſunder the nervous bodies. Hence therefore it is, that of ſuch wounds ſome are ſimple, others compound, and the compound, ſome more compound than other. For of theſe ſome are ſuperficiary

Their ſymptomes.

Why a puncture of a nerve is deadly.

perficiary and ſhort,others deepe and long; ſome runne alongſt the nervous body, others runne broadwayes; ſome cut the part quite aſunder, others onely a portion thereof. The ſymptomes which follow upon ſuch wounds are,vehement paine, and defluxion,inflammation,abſceſſe, feaver, *delirium*, ſowning, convulſion, gangrene, ſphacell; whence often death enſues by reaſon of that ſympathy, which all the nervous parts have with the braine. Amongſt all the wounds of the nervous parts, there is none more to be feared than a puncture, or pricke, nor any which cauſeth more cruell and dangerous ſymptomes. For by reaſon of the ſtraitneſſe of the wound, medicines can neyther be put in, nor the ſanious matter paſſe forth:now the ſanious matter by long ſtay acquires virulencie, whereby the nervous parts are tainted and ſwollne,ſuffer paine,inflammation,convulſions and infinite other ſymptomes;of theſe the wounds are moſt dangerous, by which the nervous and membranous bodies are but halfe cut aſunder.For the portion whereof which remaines whole,by its drawing and contracting its ſelfe towards the originall,cauſeth great paine and convulſion by ſympathy.The truth hereof is evident in wounds of the head,as when the *pericranium* is halfe cut, or when it is cut to apply a Trepan. For the cutting thereof infers farre greater paine,than when it is cut quite aſunder. Wherefore it is ſafer,to have the nervous body cut quite off, for ſo it hath no cōmunity, nor conſent with the upper parts, neither doth it labour,or ſtrive to reſiſt the contraction of its ſelfe; now this contrariety,and as it were fight,is the cauſe of paine;yet there ariſes another miſery from ſuch a wound,for the part whereinto the nerve which is thus cut inſunder paſſes,thence forwards looſeth its action.

Chap. XXXVIII.

Of the cure of wounds of the nervous parts.

A wound of the nervous parts indicates contrary to the generall cure of wounds.

IT is the ancient doctrine of the ancient Phiſitions,that the wounds of the nervous parts ſhould not preſently be agglutinated(which notwithſtanding the generall and firſt indication uſually taken from the ſolution of continuity requires)but rather,chiefely if they be too ſtraite,that the punctures ſhould be dilated, by cutting the parts which are above them,and let them be kept long open that the filth may paſſe freely forth and the medicine enter well in. Yet I in many cures have not followed this counſell,but rather that which the common indication requires.

A Hiſtorie.

That cure is in freſh memory which I performed upon Monſieur *le Cocq*, a Procter of the ſpirituall court,who dwelt in our Ladies ſtreete; he gathering and binding up ſome looſe papers,run a penknife which was hid amongſt them, through his hand. Alſo one of his neighbours who went to ſpit a piece of beefe,thruſt the ſpit through the midſt of his hand; But I preſently agglutinated both their wounds, without any danger,dropping preſently in at the firſt dreſſing a little of my balſame warme,&putting about it a repelling & aſtringent medicine,& by this meanes they were both of them healed in a ſhort time,no ſymptome thereupon happening. Yet I would not have the young Chirurgion to run this hazard,for firſt he muſt be well practiſed and accuſtomed to know the tempers and habits of men; for this manner of curing would not doe well in a plethoricke body,or in a body replete with ill humours,or endued with exquiſite ſenſe. Therefore in ſuch a caſe it will be ſafer to follow the courſe here ſet downe. For wounds of the nerves doe not onely differ from other wounds, but alſo among themſelves in manner of curing. For although all medicines which draw from farre,and waſte ſanious humors, may be reputed good for the wounds of the nerves; yet thoſe which muſt be applyed to punctures and to thoſe nerves which are not wholly laid open,ought to be far more powerfull,ſharpe and drying, yet ſo that they be not without biting,that ſo penetrating more deepe they may draw forth the matter,or elſe conſume and diſcuſſe that which eyther lies about the nerves, or moiſtens their ſubſtance. On the contrary when the ſinewes are bared from fleſh and the adjoyning particles, they ſtand in neede but of medicines, which may onely dry. Here you may furniſh your ſelves with ſufficient ſtore of medicins good for the nerves howſoever pricked. As ℞. *Terebinth.ven.& olei veteris an.*℥j.*aquæ vitæ parum.* Or ℞.*olei Terebinth.*℥j.*aquæ vitæ* ʒj.*euphorb.* ʒß. Or ℞.*radices Dracontiæ, Brioniæ, valerianæ, & gentianæ exſiccatas, & in pulverem redactas, miſce cum decocto centaurij,*

Medecines fit for wounds of the nerves.

aut oleo, aut exungia veteri; drop hereof warme into the wound as much as ſhall ſuffice. Or elſe put ſome Hogges, Gooſe, Capons, or Beares greaſe, old oile, oile of Lillyes or the like, to *Galbanum*, pure Rozin, *opopanax* diſſolved in *aqua vitæ* and ſtrong vinegar. Or ℞.*olei hypericonis, ſambuci, & de euphorbio an.* ℥j.*ſulphuris vivi ſubtiliter pulveriſati* ℥ß *gummi ammoniaci, bdellij, an.* ʒij.*aceti boni* ℥ij. *vermium terreſt. præparat.*℥j.*bulliant omnia ſimul ad conſumptionem aceti.* Let as much hereof as ſhall ſuffice be dropped into the wound; then apply this following cerate, which drawes very powerfully. ℞.*olei ſuprà ſcripti* ℥j.*terebinth. venet.* ℥ß.*diachylonis albi cum gummi,* ʒx.*ammoniac bdellij in aceto diſſolutorum an.* ʒij.*reſin. pini, gum. elemi, picis navalis an.* ʒv; *ceræ quod ſufficit, fiat ceratum ſatis molle.* We muſt uſe ſomewhiles one, ſomewhiles another of theſe medicines in punctures of the Nerves with choiſe and judgement, according to their conditions, manner, depth, and the temperaments and habit of the wounded bodies. But if the paine yeeld not to ſuch remedies, but rather increaſe, with the inflammation of the affected part, a ſwelling of the lips of the wound, and ſweating forth of a ſerous, thinne and virulent matter or filth, then you ſhall poure into it ſcalding oyle, and ſhall touch three or foure times not onely the ſurface of the wound but the bottome thereof with a ragge dipped therein and tyed to the end of a *ſpatula*. For this will take away the ſenſe from the Nerve, Tendon, or Membrane, like as if they were burnt with a cautery, and ſo the paine will be eaſed. So in the moſt grievous paines of rotten teeth, the thruſting of an hot iron into their roots, or ſtopping them with cotten dipped in oyle of Vitrioll, or *aqua vitæ*, gives moſt certaine eaſe; for by burning the Nerve which is inſerted into their roots, the ſenſe and ſo conſequently the paine is taken away. So alſo in malignant, gnawing, eating, and ſpreading ulcers, which are alwayes aſſociated with much paine, the paine ceaſes by applying an Eſcharoticke, as the pouder of Alume, or Mercury, or *ægyptiacum* made ſomewhat more ſtrong than uſuall. That the yong Chirurgion may be more ready for this practiſe and the uſe of the former remedies, I have thought good to inſert the following Hiſtory both for the lateneſſe of the thing and the pleaſing memory of the moſt laudible Prince.

What wounds of the Nerves muſt be burnt.

A certaine Anodyne in paine of the teeth.

Why Eſcharoticks muſt be uſed to ſpreading ulcers.

A famous hiſtorie.

Charles the ninth the French King being ſicke of a feaver, Monſieur *Chapellan* and *Caſtellan* his Phiſitions thought it fit hee ſhould be let blood; for the performance whereof, there was called a Chirurgion wondrous famous for that buſineſſe; but when as he by chance had pricked a nerve in ſtead of a veine, the King cryed out, that he felt a mighty paine in that place. Then I bid, that the ligature ſhould ſtraightwayes be looſed, otherwiſe the arme would preſently be much ſwelled. But he going ſlowly about it, behold the arme begun to ſwell with ſuch contraction, that he could not bend it, nor put it forth, and cruell paine moleſted not onely the pricked particle, but all the whole member beſids. I forthwith laid upon the wound a plaiſter of *Baſilicō*, to hinder the agglutination thereof, & then I wrapped all the arme in a double linnen cloth dipped in oxycrate, putting upon it an expulſive ligature, which beginning at the wriſt & ending at the top of the ſhoulder, might keepe the blood and ſpirits from feare of defluxion and inflammation. This being thus performed, we went aſide to conſult what was neceſſary to be done, both to aſſwage the paine, as alſo to divert the other ſymptomes, which uſually happen upon punctures of the nerves. I being deſired, thus delivered my opinion, that in my minde, there were nothing better, than preſently to drop into the wound ſome oyle of Turpentine warmed and mixed with a little *aqua vitæ*. And then all the arme ſhould be covered with a plaiſter of *Diacalcitheos* diſſolved in vinegar and oyle of Roſes, bound over and beſides with the expulſive ligature, which we formerly mentioned. For the oyle and *aqua vitæ* have a faculty to penetrate into the bottome of the wound, & to exhauſt and dry up, the ſerous and virulent humour, which ſweats from the ſubſtance of the pricked nerve; and alſo to mitigate the paine by its actuall heate. Furthermore the emplaſter *Diacalcitheos* hath a faculty to diſſolve the humour which hath already fallen downe into the arme, and to hinder the entrance and defluxion of any new matter. And the ligature is ſuch as by its moderate aſtriction would ſerve to ſtrengthen the muſcles, and to preſſe out and repell the humours which were fallen downe into the upper part, and to prohibite that which is ready to fall downe. Mine advice being approved of the Phyſitions both in word and deede, the paine was mitigated. But the humour ſtayed in the part, for the diſſolving and drying whereof, this following remedy was uſed.

A diſcuſsing and drying cataplaſme.

℞ *far. hordei & orobi, an.* ʒij. *flor. chamæm. & melilot. an.* p. ij *butyr. recentis ſine ſale* ℥jß. *lixivij barbitonſoris quod ſufficit, fiat cataplaſma ad formam pultis.* By theſe remedies the King at the laſt after three months ſpace was perfectly healed, ſo that there remained no ſigne of the depraved action in the part. But if at any time there ſhall be ſo great contumacie, that it will not yeeld to theſe meanes, but that there is imminent danger of a convulſion; it will bee better to cut it in ſunder whether Nerve, Tendon or Membrane, than to expoſe the patient to the danger of a deadly convulſion; for thus indeede the peculiar action of that part will be loſt, but the whole body preſerved thereby; for ſo we had determined by common conſent, that if the paine which afflicted the King would not yeeld to the preſcribed remedies, eyther to poure in ſcalding oyle, or elſe to cut the ſinew quite aſunder.

A Hiſtorie.

For the late and ſad memory of Miſtris *Courtin* dwelling in the ſtreete of the holy-Croſſe was in our mindes, who of a veine not well opened in her arme fell into a Gangræne and totall mortification of that whole part, of which ſhee died, becauſe ſhee was not dreſſed with the formerly mentioned medicines. Yet wee muſt abſteine from theſe too powerfull remedies, when the pricked nerve ſhall lye bare, for elſe the paine would be encreaſed, and more grievous ſymptomes follow. Wherefore as I have formerly wiſhed, more milde medicines muſt be applyed, which may dry up the ſerous humour without biting or acrimonye, as ℞. *terebinth. venet. in aq. roſ. lotæ* ℥ij. *boli armen. ſubtiliter pulveriſati,* ʒij. *incorporentur ſimul.* Our Balſame alſo is excellent in this caſe, and this of *Vigoes* which followes.

An anodyne and Sarcotick Balſame.

℞. *olei. roſar. omphacini* ℥jß. *olei de terebinth.* ʒiij. *ſucci plantag.* ℥ß. *ſemin. hypericonis aliquantulū contriti. m.* ß. *tutiæ præpar.* ʒiij. *calcis decies lotæ cum aqua plantagin.* ʒij. *antimonij* ʒi. *ſevi hircini, & vitulini, an* ʒv. *vermium terreſtrium cum vino lotorum* ℥jß. *bulliant omnia ſimul dempta tutia in cyatho decoctionis hordei, ad conſumptionem aquæ & vini, colentur, rurſumq; igni admoveantur, addendo tutiam, & fiat linimentum cum cera alba, &* ʒß. *croci.* This liniment aſſwages paines, and covers the bared nerves with fleſh. This cure of punctured nerves, may with choiſe and judgement and obſerving the proportion of the parts be transferred to the pricked Tendons and membranes. But take this as a generall and common rule, that all nervous bodies howſoever hurt, are to bee comforted by anointing them with hot oyles, ſuch as the oiles of Bayes, Lillies, of Wormes, Sage, or ſome other ſuch like remedy being applyed to their originalls and more notable paſſages; as to the originall of the ſpinall marrow, the armepits and groines. Neither doe I thinke it fit in this place to omit an affect which ſometimes happens to the large Tendon of the heele, of which we formerly made mention. For it oft times is rent or torne by a ſmall occaſion without any ſigne of injury or ſolution of continuity apparent on the outſide as by a little jumpe, the ſlipping aſide of the foote, the too nimble getting on horſeback, or the ſlipping of the foote out of the ſtirrop in mounting into the ſadlde. When this chance happens it will give a cracke like a Coachmans whip; above the heele, where the tendon is broken, the depreſſed cavity may be felt with your finger, there is great paine in the part, & the party is not able to goe. This miſchance may be amended by long lying and reſting in bed, and repelling medicines applied to the part affected in the beginning of the diſeaſe, for feare of more grievous ſymptomes; & then applying the Blacke plaiſter, or *Diacalcitheos* or ſome other ſuch, as neede ſhall require; neither muſt we hereupon promiſe to our ſelves or the patient certaine or abſolute health. But on the contrary at the beginning of the diſeaſe we muſt foretell, that it wil never be ſo cured but that ſome reliques may remaine, as the depreſſion of the part affected and depravation of the action and going; for the ends of this broken or relaxed Tendon by reaſon of its thickeneſſe and contumacie cannot eaſily be adjoyned, nor being adjoyned, united.

A generall rule for all wounds of all Nervous parts.

CHAP.

CHAP. XXXIX.

Of the wounds of the joynts.

Why wounds of the joynts are malignant.

BEcauſe the wounds of the joynts have ſomething proper and peculiar to themſelves, beſides the common nature of wounds of the Nerves, therefore I intend to treat of them in particular. Indeede they are alwayes very dangerous, and for the moſt part deadly, by reaſon of the nervous productions and membranous Tendons wherewith they are bound and engirt, and into which the Nerves are inſerted: whereby it comes to paſſe, that the exquiſite ſenſe of ſuch like parts will eaſily bring maligne ſymptomes, eſpecially if the wound poſſeſſe an internall, or as they terme it, a domeſtique part of them; as for example, the armepits, the bending of the arme, the inner part of the wriſt, and ham, by reaſon of the notable Veines, Arteries and Nerves of theſe parts, the looſed continuity of all which brings a great flux of blood, ſharpe paine and other malignant ſymptomes; all which we muſt reſiſt according to their nature and condition, as a flux of blood with things ſtaying bleeding, paine with anodynes. If the wound be large and wide, the ſevered parts ſhall be joyned with a ſuture, leaving an orifice in the lower part, by which the quitture may paſſe forth. This following pouder of *Vigoes* deſcription muſt be ſtrewed upon the ſuture.

The cure.

℞. *thuris, ſang. draconis, boli armen. terræ ſigill. an.* ʒij. *aloes, maſtich. an.* ʒj. *fiat pulvis ſubtilis.* And then the joynt muſt bee wrapped about with a repercuſſive medicine compoſed of the whites of egges, a little oyle of Roſes, Bole, Maſtich, and barly floure. If it be needefull to uſe a Tent, let it be ſhort and according to the wound thicke, leſt it cauſe paine: and moreover let it bee annointed with the yolke of an egge, oyle of Roſes, waſhed turpenetine and a little ſaffron. But if the wound bee more ſhort and narrow, it ſhall be dilated, if there be occaſion, that ſo the humour may paſſe away more freely. You muſt reſt the part, and beware of uſing cold, relaxing mollifying, humecting, and unctuous medicines, unleſſe peradventure the ſharpeneſſe of the paine muſt be mitigated. For on the contrary, aſtringent and deſiccant medicines are good, as this following cataplaſme.

An aſtringent and drying cataplaſme.

℞. *furfur. macri, farin. hordei, & fabarum. an.* ℥iiij. *florum chamæ. & melil. an* m. ß. *terebinth.* ℥iij. *mellis communis* ℥ij. *ol. myrtini* ℥j. *oxymelitis, vel oxycrat. vel lixivij com. quantum ſufficit, fiat cataplaſma ad formam pultis.* Or you may compoſe one of the Lees of wine, Wheate branne, the pouder of Oaken barke, cypreſſe nuts, galls and Turpentine and ſuch like, that have an aſtringent, ſtrengthning and drying qualitie, and thereby aſſwaging paine, and hindering the defluxion of humours. This following medicine is aſtringent and agglutinative.

℞. *Terebinth. venet.* ℥ij. *aq, vitæ parum, pulveris maſtich. aloes, myrrha, boli armen. an.* ℈ij. And alſo our balſame will be good in this caſe, if ſo be that, you adde hereto ſo much pouder which dryes without acrimonie as occaſion ſhall ſerve. I admoniſhed you before to take heede of cold, and now againe; for it is hurtfull to all wounds and ulcers, but eſpecially to theſe of the nervous parts; hence it is that many dye of ſmall wounds in the winter, who might recover of the ſame wounds though greater in the Summer. For cold according to *Hippocrates* is nipping to ulcers, hardens the skin, and hinders them from ſuppuration, extinguiſheth naturall heate, cauſes blackeneſſe, cold aguiſh fits, convulſions and diſtentions. Now divers excrements are caſt forth of wounds of the joynts, but chiefely albugineous, that is, reſembling the white of an egge, and mucous, and ſometime a very thinne water, all which ſavour of the nature of that humour which nouriſheth theſe parts. For to every part there is appropriate for his nouriſhment and conſervation, a peculiar Balſame, which by the wound flowes out of the ſame part, as out of the branches of the Vine when they are pruned, their radicall moiſture or juice flowes; whence alſo a *Callus* proceeds in broken bones. Now this ſame mucous and albugineous humour, ſlow and as it were frozen flowing from the wounded joynts, ſhewes the cold diſtemper of the parts, which cauſes paine, not to be orecome by medicines onely potentially hot. Wherefore to correct

Aphor. 20. ſect. 5.

What matter uſually flowes from wounds of the joynts.

Why things actually hot muſt be applyed to the wounded ioynts.

Of the ſite and poſture of wounded ioynts.

correct that, we muſt apply things actually hot, as beaſts and ſwines bladders halfe full of a diſcuſſing decoction, or hot bricks quenched in wine. Such actuall heate helps nature to concoct and diſcuſſe the ſuperfluous humour impact in the joynts, and ſtrengthens them; both which are very neceſſary, becauſe the naturall heate of the joynts is ſo infirme that it can ſcarſe actuate the medicine unleſſe it be helped with medicines actually hot. Neither muſt the Chirurgion have the leaſt care of the figure and poſture of the part, for a vicious poſture increaſes ill ſymptomes, uſes to bring to the very part though the wound be cured, diſtortion, numnes, incurable contraction; which fault leaſt he ſhould runne into, let him obſerve what I ſhall now ſay; If the forepart of the ſhoulder be wounded, a great boulſter muſt be under the armepit, and you muſt carry your arme in a ſcarſe, ſo that it may beare up the lower part of the arme, that ſo the top of the ſhoulder may be elevated ſomewhat higher, and that ſo it may be thereby more ſpeedily and happily agglutinated and conſolidated. If the lower part be wounded, when fleſh begins to be generated and the lips of the wound to meete, you muſt bid the patient to moove and ſtirre his armes divers wayes ever and anon, for if that be omitted or negligently done, when it is cicatrized then it wil be more ſtiffe and leſſe pliable to every motion; and yet there is a further danger leaſt the arme ſhould totally looſe its motion. If the wound be upon the joynt of the elbow, the arme ſhall be placed and ſwathed in a middle poſture, that is, which neither too ſtraitly bowes it, nor holds it too ſtiffly out; for otherwiſe when it is cicatrized, there will be an impediment either in the contraction or extenſion. When the wound is in the wriſt, or joynts of the fingers either externally or internally, the hand muſt be kept halfe ſhut, continually mooving a ball therein. For if the fingers be held ſtraight ſtretched forth, after it is cicatrized, they will be unapt to take up or hold any thing, which is their proper faculty. But if after it is healed, it remaine halfe ſhut, no great inconvenience will follow thereon; for ſo hee may uſe his hand divers wayes to his ſword, pike, bridle and in any thing elſe. If the joynts of the Hip be wounded, you muſt ſo place the patient that the thigh bone may be kept in the cavity of the hucklebone, & may not part a haires breadth therefrom, which ſhal be done with linnen boulſters and ligatures applyed as is fitting, and lying full upon his backe. When the wound ſhal begin to cicatrize, the patient ſhall uſe to moove his thigh every way, leaſt the head of the Thigh-bone ſticke in the cavity of the huckle-bone without motion. In a wound of the knee, the legge muſt be placed ſtraight out, if the patient deſire not to be lame. When the joynts of the feete and toes are wounded, theſe parts ſhall neither be bended in nor out, for otherwiſe he will not be able to goe.

To conclude, the ſite of the foote and legge, is quite contrary to that of the arme and hand.

Chap. XL.

Of the wounds of the Ligaments.

Ligaments more dry than Nerves, and without ſenſe.

THe wounds of the Ligaments, beſides the common manner of curing theſe of the Nerves, have nothing peculiar, but that they require more powerfull medicines, for their agglutination, deſiccation and conſolidating, both becauſe the Ligamentall parts are harder, and dryer, and alſo for that they are voyd of ſence. Therefore the foreſaid cure of Nerves and joynts may be uſed for theſe wounds: for the medicines in both are of the ſame kinde, but here they ought to be ſtronger and more powerfully drying. The Theorie and cure of all the ſymptomes which ſhall happen thereupon have beene expreſſed in the Chapter of curing the wounds of the nervous parts, ſo that heere we ſhall neede to ſpeake nothing of them, for there you may finde as much as you will. Wherefore here let us make an end of wounds, and give thankes to God the author and giver of all good for the happy proceſſe of our labours, and let us pray that, that which remaines may be brought to a happy end, and ſecure for the health and ſafety of good people.

The end of the tenth Booke.

OF VVOUNDS MADE BY GVNSHOT, OTHER FIERIE ENGEINES, AND ALL SORTS OF WEAPONS.

The Eleventh Booke.

The Preface.

I Have thought good here to premiſe my opinion of the originall, encreaſe, and hurt of fiery Engines, for that, I hope it will be an ornament and grace to this my whole treatiſe: as alſo to intice my Reader, as it were with theſe junckets, to our following Banquet ſo much ſavouring of Gunpouder. For thus it ſhall bee knowne to all whence Guns had their originall, and how many habits and ſhapes they have acquired from poore and obſcure beginnings; and laſtly how hurtfull to mankind the uſe of them is.

Polydore Virgill writes that a Germane of obſcure birth and condition was the inventor of this new engine which we terme a Gun, being induced thereto by this occaſion. He kept in a mortar covered with a tyle, or ſlate, for ſome other certaine uſes a pouder (which ſince that time for its chiefe and new knowne faculty, is named Gunpouder.) Now it chanced as hee ſtrucke fire with a ſteele and flint, a ſparke thereof by accident fell into the mortar, whereupon the pouder ſuddainly catching fire, caſts the ſtone or tyle which covered the mortar, up on high; he ſtood amazed at the novelty and ſtrange effect of the thing, and withall obſerved the formerly unknowne faculty of the pouder; ſo that he thought good to make experiment thereof in a ſmall Iron trunke framed for that purpoſe according to the intention of his minde. When all things were correſpondent to his expectation, he firſt ſhewed the uſe of his engine to the Venetians, when they warred with the Genoveſes about *Foſſa Clodia*, in the yeare of our Lord 1380. Yet in the opinion of *Peter Meſsias*, their invention muſt have beene of greater antiquity; for it is read in the Chronicles of *Alphonſus* the eleaventh King of *Caſtile*, who ſubdued the Iſles *Argezires*, that when he beſeiged the cheefe Towne in the yeare of our Lord 1343. the beſeiged Moores ſhot as it were thunder againſt the aſſailants, out of Iron mortars. But we have read in the Chronicles written by *Peter* Biſhop of *Leons*, of that *Alphonſus* who conquered *Toledo*, that in a certaine ſea fight fought by the King of *Tunis*, againſt the Mooriſh King of *Sivill*, whoſe part King *Alphonſus* favoured, the *Tunetans* caſt lightning out of certaine hollow Engines or Trunkes with much noiſe. Which could be no other, than our Guns, though not attained to that perfection of art and execution which they now have.

Lib. 2. de invent. rerum.

Cap. 8. prim. par. Var. lect.

I thinke the deviſer of this deadly Engine hath this for his recompence, that his name ſhould be hidden by the darkeneſſe of perpetuall ignorance, as not meriting for this his moſt pernicious invention, any mention from poſterity. Yet *Andrew Thevet* in his Coſmography publiſhed ſome few yeares agone, when hee comes to treate of the *Suevi*, the inhabitants of Germany, brings upon the authority & credite of a certaine old Manuſcript, that the Germane the inventer of this warlike Engine was by profeſſion a monke and Philoſopher or Alchymiſt, borne at *Friburge*, and named *Conſtantine Anclzen.* Howſoever it was, this kind of Engine was called *Bombarda* (*i*) a Gun, from that noiſe it makes, which the Greekes and Latines according to the ſound call *Bombus*; then in the following ages, time, art and mans maliciouſneſſe added much to this rude and unpoliſht invention. For firſt for the matter, Braſſe and Copper, mettalls farre more tractable, fuſible and leſſe ſubject to ruſt, came as ſupplies to Iron. Then for the forme, that rude and undigeſted barrell, or mortar-like maſſe, hath undergone many formes and faſhions, even ſo farre as it is gotten upon wheeles, that ſo it might run not onely from the higher ground, but alſo with more rapide violence to the ruine of mankinde; when as the firſt and rude mortars ſeemed not to bee ſo nimbly traverſed, nor ſufficiently cruell for our deſtruction by the onely caſting forth of Iron & fire. Hence ſprung theſe horrible monſters of Canons, double Canons, Baſtards, Muſquits, feild peices; hence theſe cruell and furious beaſts, Culverines, Serpentines, Baſiliſques, Sackers, Falcons, Falconets, and divers other names not onely drawne from their figure and making, but alſo from the effects of their cruelty. Wherefore certainly I cannot ſufficiently admire the wiſedome of our Anceſtors, who have ſo rightly accommodated them with names agreeable to their natures; as thoſe who have not onely taken them from the ſwifteſt birds of prey, as Falcons; but alſo from things moſt harmefull and hatefull to mankinde, ſuch as Serpents, Snakes, and Baſiliſks. That ſo wee might clearely diſcerne, that theſe engines were made for no other purpoſe, nor with other intent, but onely to be imployed for the ſpeedy and cruell ſlaughter of men; and that by onely hearing them named we might deteſt and abhorre them, as pernicious enemies of our lives. I let paſſe other engines of this ofspring, being for their quantitie ſmall, but ſo much the more pernicious and harmefull, for that they nearer aſſaile our lives, and may trayterouſly and forthwith ſeaze upon us not thinking nor fearing any ſuch thing; ſo that we can ſcarſe have any meanes of eſcape; ſuch are Piſtolls and other ſmall hand-guns, which for ſhortneſſe you may carry in your pocket, and ſo privily and ſuddainly taking them forth oppreſſe the careleſſe and ſecure. Fowling peices which men uſually carry upon their ſhoulders, are of the middle ranke of theſe engines, as alſo Muskets and Caleevers, which you cannot well diſcharge unleſſe lying upon a Reſt, which therefore may be called Breaſt-guns for that they are not laid to the cheeke, but againſt the Breaſt by reaſon of their weight and ſhortneſſe; All which have beene invented for the commodity of footemen, and light horſemen. This middle ſort of engine we call in Latine by a generall name *Sclopus*, in imitation of the ſound, and the Italians who terme it *Sclopetere*; the French call it *Harquebuſe*, a word likewiſe borrowed from the Italians, by reaſon of the touch-hole by which you give fire to the peice, for the Italians call a hole *Buzio.* It is tearmed, *Arcus* (*i*) a Bow, for that at this preſent it holds the ſame place in martiall affaires, as the Bow did of old; and as the Archers formerly, ſo at this day the Muſquetiers are placed in front. From the ſame wretched ſhoppe and magazine of cruelty, are all ſorts of Mines, Countermines, pots of fire, traines, fiery Arrowes, Lances, Croſſebowes, barrells, balls of fire, burning faggots, Granats, and all ſuch fiery engines and Inventions, which cloſely ſtuffed with fewell and matter for fire, and caſt by the defendants upon the bodies and Tents of the aſſailants, eaſily take fire by the violence of their motion. Certainely a moſt miſerable and pernicious kinde of invention, whereby we often ſee a thouſand of heedeleſſe men blowne up with a mine by the force of gunpouder; otherwhiles in the very heate of the conflict you may ſee the ſtouteſt ſouldiers ſeazed upon with ſome of theſe fiery Engines, to burne in their harneſſe, no waters being ſufficiently powerfull to reſtraine and quench the raging and waſting violence of ſuch fire cruelly ſpreading over the body and bowells. So it was not ſufficient to have

Who the inventor of Guns.

The reaſon of the name.

The danger of Piſtolls.

armes, Iron and fire to mans deſtruction, unleſſe alſo that the ſtroake might be more ſpeedy, we had furniſhed them, as it were with wings, ſo to fly more haſtily to our owne perdition, furniſhing ſithe-bearing death with wings ſo more ſpeedily to oppreſſe man, for whoſe preſervation, all things conteined in the world were created by God. Verily when I conſider with my ſelfe all the ſorts of warlike Engines, which the ancients uſed, whether in the field in ſet battells, as Bowes, Darts, Croſſebowes, Slings; or in the aſſault of Citties, and ſhaking or overturning their walls, as Rammes, Horſes, wooddon towres, ſlings and ſuch like; they ſeeme to me certaine childiſh ſports and games made onely in imitation of the former. For theſe moderne inventions are ſuch as eaſily exceede all the beſt appointed and cruell Engines which can bee mentioned or thought upon, in the ſhape, cruelty and appearance of their operations. For what in the world is thought more horrid or fearefull than thunder and lightning? and yet the hurtfulneſſe of thunder is almoſt nothing to the cruelty of theſe infernall Engines; which may eaſily appeare by comparing together both their effects. Man alone of all creatures is not alwayes killed by being touched with thunder; but it immediatly killeth all other things which are ſubject to bee toucht therewith.

A compariſon of the ancient weapons with the moderne.

Plini. Lib. 2. Cap. 54.

Nature beſtowing this honour upon him, ſeeing ſo many creatures exceede him in ſtrength: For all things ly contrary to man; and man, unleſſe hee bee overthrowne with it, doth not dye thereof. But theſe fire-ſpitting Engines doe no more ſpare man, than they doe other creatures, and kill without difference from whence ſoever they come, whither ſoever they are carried, and howſoever they touch. There are many, but more are ſaid to be the remedies againſt thunder; for beſide the charmes whereby the ancient Romans did ſuppoſe they might be driven away, they never penetrate deeper into ground than five foote, therefore ſuch as were fearefull thought the deeper Caves moſt ſafe. Of thoſe things which grow out of the earth they doe not touch the Bay tree, and that was the cauſe that it was counted a ſigne of victory both in ancient and moderne times. Wherefore *Tiberius Cæſar* otherwiſe a contemner of God and religion, as hee who indued with the Mathematicall ſciences thought all things governed by fate, yet becauſe hee exceedingly feared thunder, hee alwayes carried a Lawrell wreath about his necke when the aire was troubled, for that this kind of leafe is reported not to be touched by thunder. Some report that he made him tents of Seales ſkinnes, becauſe it toucheth not this kinde of creature of all theſe things that live in the Sea, as neither the Eagle amongſt birds, which for that is fained to be *Ioves* ſquire. But on the contrary, charmes, the victorious Bay, the Seale or Sea-calfe, the Eagle or any ſuch thing profits nothing againſt the violence of theſe fiery Engines: no not a wall of tenne foote thicke will advantage. Laſtly, this argues the immenſe violence of braſen Cannons above thunder, for that thunder may be diſperſed and driven away with the noyſe and ringing of Bells, the ſounding of Trumpets, the tinkling of braſen kettles, yea alſo by the ſhooting of ſuch great Ordinance; to wit, the clouds, by whoſe colliſion and fight the Thunder is cauſed, being diſperſed by this violent agitation of the ayre, or elſe driven further to more remote parts of the skies. But their fury once provoked, is ſtayed by no oppoſition, appeaſed by no remedy. As there are certaine ſeaſons of the yeare, ſo alſo there are certaine Regions of the earth, wherein Thunder is ſeldome or never heard. Thunders are rare in Winter and Summer, and that for contrary cauſes; for that in Winter the denſe aire is thickned with a thicker coate of clouds, and the froſty and cold exhalation of the earth extinguiſheth what fiery vapours ſoever it receives; which thing keepes *Scythia* and the cold countries about it free from Thunder. And on the contrary, too much heate preſerves Egypt. For hot and dry exhalations of the earth are condenſed into very thinne, ſubtile and weake clouds. But as the invention, ſo alſo the harme and tempeſt of great Ordinance, like a contagious peſtilence is ſpread and rages over all the earth, and the skies at all times ſound againe with their reports. The Thunder and Lightning commonly gives but one blow, or ſtroke, and that commonly ſtrikes but one man of a multitude; But one great Cannon at one ſhot may ſpoyle and kill an hundred men. Thunder, as a thing naturall falls by chance, one while upon an high oake, another while upon the top of a mountaine,

Plin. Lib. 2. Cap. 55.

Sueton. in Tyberio.

The wonderous force of great Ordinance.

Plin. Lib. 2. Cap. 50.

taine, and ſomewhiles on ſome lofty towre, but ſeldome upon man. But this helliſh Engine tempered by the malice and guidance of man, aſſailes man onely, and takes him for his onely marke, and directs his bullets againſt him. The Thunder by its noyſe as a meſſenger ſent before, foretells the ſtorme at hand; but, which is the chiefe miſchiefe, this infernall Engine roares as it ſtrikes, and ſtrikes as it roares, ſending at one and the ſame time the deadly bullet into the breaſt, and the horrible noyſe into the eare. Wherefore we all of us rightfully curſe the author of ſo pernicious an Engine; on the contrary praiſe thoſe to the skies, who endeavour by words and pious exhortations to dehort Kings from their uſe, or elſe labour by writing and operation to apply fit medicines to wounds made by theſe Engines. Which hath moved me, that I have written hereof almoſt with the firſt of the French. But before I ſhall doe this, it ſeemeth not amiſſe, ſo to facilitate the way to the treatiſe I intend to write of wounds made by Gunſhot, to premiſe two Diſcourſes, by which I may confute and take away certaine erronious opinions which have poſſeſſed the mindes of divers; for that unleſſe theſe be taken away, the eſſence and nature of the whole diſeaſe cannot be underſtood, nor a fitting remedy applyed by him which is ignorant of the diſeaſe.

The arguments of the following diſcourſes.

The firſt Diſcourſe which is dedicated to the Reader, refells and condemnes by reaſons and examples the method of curing preſcribed by *Iohn de Vigo*, whereby he cauterizes the wounds made by Gunſhot, ſuppoſing them venenate; and on the contrary proves that order of curing with is performed by ſuppuratives, to be ſo ſalutary and gentle, as that preſcribed by *Vigo* is full of errour and cruelty.

The ſecond dedicated to the King, teaches that the ſame wounds, are of themſelves voyd of all poiſon, and therefore that all their malignity depends upon the fault of the aire, and ill humours predominant in the bodies of the patients.

THE FIRST DISCOVRSE, VVHEREIN VVOVNDS MADE BY GVNSHOT, ARE FREED FROM BEING BVRNT, OR CAVTERIZED ACCORDING to *Vigoes* Methode.

IN the yeare of our Lord 1536. *Francis* the French King, for his acts in warre and peace ſtiled the Great, ſent a puiſſant Army beyond the Alpes, under the governement and leading of *Annas* of Mommorancie high Conſtable of France, both that he might releeve *Turin* with victualls, ſouldiers, and all things needefull, as alſo to recover the Citties of that Province taken by the Marquis of *Guaſt* Generall of the Emperours forces. I was in the Kings Army the Chirurgion of Monſieur of *Montejan* Generall of the foote. The Imperialiſts had taken the ſtraits of *Suze*, the Caſtle of *Villane*, and all the other paſſages; ſo that the Kings army was not able to drive them from their fortifications but by fight. In this conflict there were many wounded on both ſides with all ſorts of weapons, but cheefely with bullets. I will tell the truth, I was not very expert at that time in matters of Chirurgery; neither was I uſed to dreſſe wounds made by Gunſhot. Now I had read in *Iohn de Vigo* that wounds made by Gunſhot were venenate or poiſoned, and that by reaſon of the Gunpouder; Wherefore for their cure, it was expedient to burne or cauterize them with oyle of Elders ſcalding hot, with a little Treacle mixed there-

Lib. 1. de Vulner. Cap. 8.

with. But for that I gave no great credite neither to the author, nor remedy, becauſe I knew that cauſtickes could not be powred into wounds, without exceſſive paine; I, before I would runne a hazard, determined to ſee whether the Chirurgions, who went with me in the army, uſed any other manner of dreſſing to theſe wounds. I obſerved and ſaw that all of them uſed that Method of dreſſing which *Vigo* preſcribes; and that they filled as full as they could, the wounds made by Gunſhot with Tents and pledgets dipped in this ſcalding Oyle, at the firſt dreſſings; which encouraged me to doe the like to thoſe, who came to be dreſſed of me. It chanced on a time, that by reaſon of the multitude that were hurt, I wanted this Oyle. Now becauſe there were ſome few left to be dreſſed, I was forced, that I might ſeeme to want nothing, and that I might not leave them undreſt, to apply a digeſtive made of the yolke of an egge, oyle of Roſes, and Turpentine. I could not ſleepe all that night, for I was troubled in minde, and the dreſſing of the precedent day (which I judged unfit) troubled my thoughts; and I feared that the next day I ſhould finde them dead, or at the point of death by the poyſon of the wound, whom I had not dreſſed with the ſcalding oyle. Therefore I roſe early in the morning, I viſited my patients, and beyound expectation, I found ſuch as I had dreſſed with a digeſtive onely, free from vehemencie of paine to have had goood reſt, and that their wounds were not inflamed, nor tumifyed; but on the contrary the others that were burnt with the ſcalding oyle were feaveriſh, tormented with much paine, and the parts about their wounds were ſwolne. When I had many times tryed this in divers others, I thought thus much, that neither I nor any other ſhould ever cauterize any wounded with Gun-ſhot. When wee firſt came to *Turin*, there was there a Chirurgion farre more famous than all the reſt in artificially and happily curing wounds made by Gun-ſhot; wherefore I laboured withall diligence for two yeeres time to gaine his favour and love, that ſo at the length, I might learne of him, what kinde of Medicine that was, which he honoured with the glorious tittle of Balſame, which was ſo highly eſteemed by him, and ſo happy and ſucceſfull to his patients; yet could I not obtaine it. It fell out a ſmall while after that the Marſhall of *Montejan* the Kings Leiſtenant, Generall there in *Piemont* dyed, wherefore I went unto my Chirurgion, and told him that I could take no pleaſure in living there, the favourer and *Mecenas* of my ſtudies being taken away; and that I intended forthwith to returne to *Paris*, and that it would neither hinder, nor diſcredit him to teach his remedy to me, who ſhould be ſo farre remote from him. When he heard this, he made no delay, but preſently wiſhed mee to provide two Whelpes, 1 pound of earthwormes, 2 pounds of oyle of Lillyes, ſixe ounces of Venice Turpentine, and one ounce of *aqua vitæ*. In my preſence he boyled the Whelpes put alive into that oyle, untill the fleſh came from the bones, then preſently he put in the Wormes, which he had firſt killed in white wine, that they might ſo be cleanſed from the earthy droſſe wherewith they are uſually repleate, and then hee boyled them in the ſame oyle ſo long, till they became dry, and had ſpent all their juyce therein: then hee ſtrayned it through a towell without much preſſing; and added the Turpentine to it, and laſtly the *aqua vitæ*. Calling God to witneſſe, that he had no other Balſame, wherewith to cure wounds made with Gunſhot, and bring them to ſuppuration. Thus he ſent me away as rewarded with a moſt pretious gift, requeſting me to keepe it as a great ſecret, and not to reveale it to any.

What chance may doe in finding out of remedies.

The deſcription of oyle of Whelpes.

When I came to *Paris*, I went to viſite *Silvius* the Kings profeſſor of Phyſicke well knowne by name to all ſchollers for his great learning; he kept me long that ſo I might dine with him, and diligently enquires of me, if I had obſerved any new Method of curing wounds made by Gun-ſhot, and combuſtions occaſioned by Gunpowder. Then I affirmed to him that Gun-pouder did not participate any thing of poyſon, for that none of theſe things, whereof it is compounded are poyſonous; which reaſon ought to free the whole compoſition from ſuſpicion of poyſon. And that experience confirmed this reaſon, for I had ſeene many ſoldiers, who would drinke a great quantity of this powder with wine, becauſe they were perſwaded, that this drinke would free them from maligne ſymptomes when they were wounded, yet I give no credit to this perſwaſion; and laſtly for that many with-

Gun-pouder not poiſonous.

out any harme, ſtrew this pouder upon rebellious ulcers. For the Bullets, I affirme, that they cannot conceive ſuch heate, as to become cauſticke. For if you ſhoot them out of a Gun againſt a hard ſtone, yet you may preſently take them up without any harme in your hands, though by ſtriking upon the ſtone, they ſhould become more hot. For the combuſtions cauſed by Gunpouder, I obſerved no ſpeciall nor peculiar remedy, which might make their cure different from other combuſtions. To which purpoſe I related this enſuing hiſtory.

Bullets ſhot out of a Gun doe not burne.

A Hiſtorie.

One of the Marſhall of *Montejan* his Kitchin boyes, fell by chance into a Caldron of Oyle being even almoſt boyling hot; I being called to dreſſe him, went to the next Apothecaries to fetch refrigerating medicines commonly uſed in this caſe: there was preſent by chance a certaine old countrey woman, who hearing that I deſired medicines for a burne, perſwaded mee at the firſt dreſſing, that I ſhould lay to raw Onions beaten with a little ſalt; for ſo I ſhould hinder the breaking out of bliſters or puſtules, as ſhee had found by certaine and frequent experience. Wherefore I thought good to try the force of her Medicine upon this greaſy ſcullion. I the next day found thoſe places of his body whereto the Onions lay, to bee free from bliſters, but the other parts which they had not touched, to be all bliſtered.

A medicine hindering bliſtring in burnes, or ſcalds.

A Hiſtorie.

It fell out a while after, that a German of *Montejan* his guard had his flaſque full of Gunpouder ſet on fire, whereby his hands and face were grievouſly burnt: I being called, laid the Onions beaten as I formerly told you, to the middle of his face, and to the reſt I laid medicines uſually applyed to burnes. At the ſecond dreſſing I obſerved the part dreſſed with the Onions quite free from bliſters and excoriation, the other being troubled with both; whereby I gave credit to the Medicine. Beſides alſo, I laſtly told him this, that I had obſerved, that that was the readieſt to draw forth bullets ſhot into the body, which ſets the patients in the ſame poſture and ſite, as hee was when hee received his hurt. Which things when I had told him, together with many other handled at large in this worke, the good old man requeſted mee to publiſh in print my opinions concerning theſe things, that ſo the erronious and hurtfull opinion of *Vigo* might bee taken out of mens minds. To whoſe earneſt entreaty when I had aſſented, I firſt of all cauſed to be drawne and carved many Inſtruments fit to draw forth Bullets and other ſtrange bodies; then a ſhort while after I firſt publiſhed this worke in the yeare of our Lord 1545. which when I found to bee well liked and approved by many, I thought good to ſet it forth the ſecond time ſomewhat amended in the yeare 1552. And the third time augmented in many particulars in the yeare 1564. For I having followed many warres, and deteined as Chirurgion in beſeiged Citties, as *Mets* and *Heſdin*, had obſerved many things under five Kings, whom I ſerved with diligence and content. I had learnt many things from moſt expert Chirurgions, but more from all learned Phyſitions, whoſe familiarity and favour for that purpoſe I alwayes laboured to acquire with all diligence and honeſt Arts; that ſo I might become more learned and ſkillfull by their familiarity and diſcourſe, if there was any thing eſpecially in this matter and kind of wounds, which was hid from me, or whereof I was not well aſſured. Of which number I have knowne very few, who any thing ſeene in this kind of operation eyther by ſtudy, or experience in Warres, who have not thought that wounds made by Gunſhot ought to be dreſſed at the firſt with ſuppurative medicines, and not with ſcalding and Cauſticke Oyle.

Wounds made by Gunſhot muſt be dreſſed with ſuppuratives.

For this I affirme, which then alſo I teſtified to this good man, that I have found very many wounds made in the fleſhy parts by Gunſhot, as eaſily cured as other wounds, which bee made by contuſing things. But in the parts of the body where the bullet meets with bones and nervous particles, both becauſe it teares and rends into ſmall peeces thoſe things which reſiſt, not onely where it touches, but further alſo, through the violence of the blow, therefore it cauſeth many and greevous ſymptomes, which are ſtubborne and difficult, and oft times impoſſible to cure, eſpecially in bodies replete with ill humors, in an ill conſtitution of the heaven and ayre, ſuch as is hot, moyſt and foggy weather,

The cauſes of difficultie in this cure.

ther, which therefore is ſubject to putrifaction; and in like manner a freezing and cold ſeaſon, which uſes to mortifie the wounded parts not onely of thoſe that are hurt with Bullets, but in like ſort with any other weapon; nor onely in bony and nervous particles, but alſo in muſculous. Whereby you may underſtand, that the difficulty of curing proceeds not from the venenate quality of the wounds, nor the combuſtion made by the Gunpouder, but the foulneſſe of the patients bodies, and the unſeaſonableneſſe of the aire.

A Hiſtorie.

For proofe whereof, I will ſet downe, that which I not long agone obſerved in a Scottiſh Nobleman the Earle of *Gordon*, Lord of *Achindon*, whom I cured at the appointment of the Queene Mother. He was ſhot through both his thighes with a Piſtoll, the bone being not hurt nor touched; and yet the 32. day after the wound he was perfectly healed, ſo that hee had neither feaver nor any other ſymptome which came upon the wound. Whereof there are worthy witneſſes, the Archbiſhop of *Glaſco*, the Scottiſh Embaſſadour, *Francis Brigart* and *Iohn Altine*, Doctors of Phyſicke, as alſo *Iames Guillemeau* the Kings Chirurgion, and *Giles Buzet* a Scottiſh Chirurgion, who all of them wondred that this Gentleman was ſo ſoone healed, no acride medicine being applyed. This I have thought good to recite and ſet downe, that the Readers may underſtand, that I for 30. yeares agoe had found the way to cure wounds made by Gunſhot, without ſcalding oyle or any other, more acrid medicine; unleſſe by accident the illneſſe of the patients bodies and of the aire cauſed any maligne ſymptomes, which might require ſuch remedies beſides the regular and ordinary way of curing, which ſhall bee more amply treated of in the following diſcourſe.

What makes Chirurgions ſometimes uſe cauſticks in curing wounds made by Gunſhot.

ANOTHER DISCOURSE OF THESE THINGS, WHICH KING CHARLES THE NINTH, REturning from the expedition and taking of *Rouën*, enquired of me concerning wounds made by Gunſhot.

The occaſion of writing this diſcourſe.

FOr that it pleaſed your Majeſtie one day, together with the Queene Mother, the Prince of the *Rocke upon Ton*, and many other Noble-men and Gentlemen, to enquire of mee, what was the cauſe that the farre greater part of the Gentlemen and common Souldiers which were wounded with Guns, and other warlike Engines, all remedies uſed in vaine, either dyed, or ſcarſe and that with much difficultie recovered of their hurts, though in appearance they were not very great, and though the Chirurgions diligently performed all things requiſite in their Art; I have made bold to premiſe this Diſcourſe to that Tractate which I determine to publiſh concerning wounds made by Gunſhot; both to ſatisfie the deſires of the Princes and of many Gentlemen, as alſo the expectation they have of mee, as being the Kings chiefe Chirurgion, (which place being given me by *Henry* the ſecond, *Charles* the ninth, a ſonne moſt worthy of ſuch a father, had confirmed) neither make I any queſtion, but that many who too much inſiſt upon their owne judgement, and not throughly conſider the things themſelves, will marvaile, and thinke it farre from reaſon; that I departing from the ſteps of my anceſtors, and diſſenting wholly from the formerly received opinions, am farre from their Tenents, who lay the cauſe of the malignitie of wounds made by Gunſhot, upon the poyſon brought into the body by the Gunpouder, or mixed with the Bullets whilſt they are tempered or caſt. Yet for all this, if they will courteouſly and patiently weigh my reaſons, they ſhall eyther thinke as I doe, or at leaſt ſhall judge this my endeavour and paines taken for the publike good, not to be condemned nor contemned.

The argument of this diſcourſe.

For I ſhall make it evident by moſt ſtrong reaſons drawne out of the writings of the Ancient both Philoſophers and Phyſitions, and alſo by certaine experiments of mine owne, and other Chirurgions, that the malignitie and contumacie which we frequently meete withall in curing wounds made by Gunſhot, is not to be attributed eyther to the poyſon carryed into the body by the Gunpouder or Bullet, nor to burning imprinted in the wounded part by the Gunpouder. Wherefore to come to our purpoſe, that opinion muſt firſt bee confuted, which accuſeth wounds made by Gunſhot of poyſon; and wee muſt teach, that there is neither any venenate ſubſtance, nor qualitie in Gunpouder, neyther if there ſhould bee any, could it empoyſon the bodies of ſuch as are wounded. Which that wee may the more eaſily performe, wee muſt examine the compoſition of ſuch pouder, and make a particular enquiry of each of the ſimples, whereof this compoſition conſiſts, what eſſence they have, what ſtrength and faculties, and laſtly what effects they may produce. For thus by knowing the ſimples, the whole nature of the compoſition conſiſting of them, will bee apparently manifeſt.

Gunpouder is not poyſonous.

Of what it is made.

The ſimples which enter the compoſition of Gunpouder are onely three, Charcoales of Sallow or Willow, or of Hempe ſtalkes, Brimſtone, and ſalt Peter, and ſometimes a little *aqua vitæ*. You ſhall finde each of theſe, if conſidered in particular, voide of all poyſon and venenate quality. For firſt, in the Char-coale you ſhall obſerve nothing but dryneſſe, and a certaine ſubtlety of ſubſtance, by meanes whereof it fires ſo ſuddainly, even as Tinder. *Sulphur* or Brimſtone is hot and dry, but not in the higheſt degree, it is of an oyly and viſcide ſubſtance, yet ſo that it doth not ſo ſpeedily catch fire as the coale, though it reteine it longer being once kindled, neither may it be ſo ſpeedily extinguiſhed. Salt Peter is ſuch, that many uſe it for Salt, whereby it is evidently apparent that the nature of ſuch ſimples is abſolutely free from all poyſon; but chiefly the Brimſtone, (which notwithſtanding is more ſuſpected than the reſt.) For *Dioſcorides* gives Brimſtone to be drunke, or ſupped out of a reare Egge to ſuch as are Aſthmaticke, troubled with the Cough, (ſpit up purulent matter, and are troubled with the yellow Iaundiſe.) But *Galen* applies it outwardly to ſuch as are bitten by venemous Beaſts, to ſcabs, teaters, and leproſyes. For the *aqua vitæ*, it is of ſo tenuious a ſubſtance that it preſently vaniſheth into aire, and alſo very many drinke it, and it is without any harme uſed in frictions of the exteriour parts of the body. Whence you may gather, that this pouder is free from all manner of poyſon, ſeeing theſe things whereof it conſiſts and is compoſed, want all ſuſpition thereof.

Lib. 5. Cap. 73. Lib. 9. ſimpl. Cap 36.

Therefore the Germane horſemen, when they are wounded with ſhot, feare not to drinke off cheerefully halfe an ounce of Gunpouder diſſolved in wine; hence perſwading themſelves freed from ſuch maligne ſymptomes as uſually happen upon ſuch wounds; wherein whether they doe right or wrong I doe not here determine; the ſame thing many French Souldiers forced by no neceſſity, but onely to ſhew themſelves more couragious, alſo doe without any harme; but divers with good ſucceſſe uſe to ſtrew it upon ulcers, ſo to dry them. Now to come to theſe, who thinke that the venenate quality of wounds made by Gunſhot, ſprings not from the pouder, but from the Bullet wherewith ſome poyſon hath beene commixt or joyned, or which hath beene tempered or ſteeped in ſome poyſonous liquor.

Bullets cannot be poyſoned.

This may ſufficiently ſerve for a reply; that the fire is aboundantly powerfull to diſſipate all the ſtrength of the Poyſon, if any ſhould bee poured upon or added to the Bullet. This much confirmes mine opinion, which every one knowes; The Bullets which the Kings ſouldiers uſed to ſhoote againſt the Townſemen in the ſeige of Rouën, were free from all poyſon, and yet for all that they of the Towne thought that they were all poyſoned, when they found the wounds made by them, to be uncurable and deadly. Now on the other ſide the Townſemen were falſly ſuſpected guilty of the ſame crime by the Kings Army, when as they perceived all the Chirurgions labour in curing the wounds made by the Bullets ſhot from Rouën, to be fruſtrated by their contumacy and maligne nature; each ſide judging of the magnitude and malignitie of the cauſe from the unhappy ſucceſſe of the effect in curing. Even as amongſt Phyſitions according to ***Hippocrates***, all diſeaſes are termed peſtilent, which ariſing from whatſoever common cauſe, kill many people; ſo alſo wounds made by Gunſhot, may in ſome reſpect be called peſtilent, for that they are more refractory, and difficult to cure than others, and not becauſe they partake of any poyſonous qualitie, but by default of ſome common cauſe, as the ill complexions of the patients, the infection of the aire, and the corruption of meats and drinkes. For by theſe cauſes wounds acquire an evill nature and become leſſe yeelding to medicines. Now we have by theſe reaſons convinced of errour that opinion which held wounds made by Gunſhot for poiſonous; let us now come to overthrow that which is held concerning their combuſtion.

As *Galen* notes *ad ſent.* 20. *et* 21. *ſect.* 3. *lib.* 3. *Epid.*

Firſt it can ſcarce be underſtood how bullets which are commonly made of Lead, can attaine to ſuch heate, but that they muſt be melted; and yet they are ſo far from melting, that being ſhot out of a Musket they will peirce through an armour and the whole body beſides, yet remaine whole, or but a little diminiſht. Beſides alſo if you ſhoote them againſt a ſtone wall, you may preſently take them up in your hand without any harme, and alſo without any manifeſt ſence of heate; though their heate by the ſtriking upon the ſtone ſhould bee rather encreaſed, if they had any.

Wounds made by Gunſhot are not burnt

Furthermore, a Bullet ſhot into a barrell of Gunpouder, would preſently ſet it all on fire, if the Bullet ſhould acquire ſuch heate by the ſhooting, but it is not ſo. For if at any time the pouder be fired by ſuch an accident, wee muſt not imagine that it is done by the bullet bringing fire with it, but by the ſtriking and colliſion thereof againſt ſome Iron, or ſtone that oppoſes or meets therewith, whence ſparkes of fire proceeding as from a flint, the pouder is fired in a moment. The like opinion wee have of thatched houſes, for they are not fiered by the bullet which is ſhot, but rather by ſome other thing as linnen ragges, browne paper, and the like, which rogues and wicked perſons faſten to their Bullets. There is another thing which more confirmes mee in this opinion, which is; take a bullet of Waxe, and keepe it from the fire, for otherwiſe it would melt, and ſhoote it againſt an inch board, and it will goe through it; whereby you may underſtand that Bullets cannot become ſo hot by ſhooting, to burne like a cautery. But the Orifices (may ſome ſay) of ſuch wounds are alwayes blacke. This indeede is true, but it is not from the effect of heate brought thither by the Bullet, but the force of the contuſion.

The reaſon why wounds made by Gunſhot looke blacke.

Now the contuſion is exceeding great, both becauſe the Bullet is round, and enters the body with incredible violence. Of which thoſe that are wounded will give you ſufficient teſtimony, for there is none of them, which thinkes not preſently upon the blow, that as it were ſome poſt, or thing of the like weight, falls upon the affected member, whence great paine and ſtupiditie poſſeſſe the part, whereby the native heate and ſpirits are ſo much diſſipated, that a Gangreen may follow.

But for the Eſchar which they affirme is made by the blow, and falls away afterwards, they are much miſtaken. For certaine particles of the membranes and fleſh contuſed and torne by the violence of the Bullet beguiles them; which preſently putrifying are ſevered from the ſound parts by the power of nature and the ſeparating heate, which thing uſually happens in all great Contuſions. But for all that theſe ſo many and weighty reaſons may free the Pouder from all ſuſpition of Poiſon, and the Bullet from all thought of burning;

yet there are many who inſiſting upon Philoſophicall arguments, raiſe new ſtirrs. For (ſay they) the diſcharging a peice of Ordinance is abſolutely like Thunder and Lightning, which the rent and torne clouds caſt from the middle region, upon the earth; wherefore the Iron bullet which is ſhot out of the Cannon muſt needs have a venenate and burning faculty.

The reaſons of our adverſaries refelled.

I am not ignorant that Lightnings generated of a groſſe and viſcous exhalation, breaking the cloud wherewith it is encompaſſed, never falls upon the earth, but brings fire with it, one while more ſubtile, another while more groſſe, according to the various condition of the matter whence the exhalation hath ariſen.

Quaſt. nat. lib. 2. cap. 49.

For *Seneca* writes that there are three ſeverall kinds of Lightning differing in burning, condition and plenty. One of them penetrates or rather perforates by the tenuity of the matter of the objects which it touches. The other with a violent impetuoſity breakes inſunder and diſſipates the objects, by reaſon it hath a more denſe, compact and forcible matter, like as Whirlewinds have. The third, for that it conſiſts of a more terreſtriall matter, burnes what it touches, leaving behind it the impreſſion of the burning.

The ſtinking ſmell of lightning.

Alſo I know that Lightning is of a peſtilent and ſtinking nature, occaſioned by the groſſeneſſe and viſcidity of the matter whereof it is; which matter taking fire ſends forth ſo lothſome and odious a ſmell that the very wilde-beaſts cannot endure it; but leave their Dennes, if they chance to be touched with ſuch a lightening. Beſides alſo, we have read in the northerne hiſtory of *Olaus Magnus*, that in ſome places after a Lightning, you ſhall finde a whole plaine ſpred over with Brimſtone, which Brimſtone notwithſtanding is extinguiſhed, unprofitable & of no efficacie. But grant theſe things be thus, yet muſt we not therefore conclude, that the Bullets of the great Ordinance carry poyſon and fire with them into the wounds. For though there be many things like in Lightning and diſcharging great Ordinance, yet they have no ſimilitude either in matter or ſubſtance, but onely in effects whereby they ſhake, breake inſunder and diſperſe the bodies which withſtand them; For Lightning and Thunder doe it by meanes of fire, and oft times of a ſtone generated in them, which is therefore tearmed, a Thunderbolt; But Ordinance by the bullet carried by the force of the aire, more violently driving and forcing it forwards; Neither if any ſhould by more powerfull arguments force me to yeeld that the matter of Lightning and ſhooting of Ordinance are like, yet will I not therefore be forced to confeſſe that wounds made by Gunſhot are combuſt.

Lib. 2. cap. 51.

For according to *Pliny*, there are ſome Lightnings which conſiſting of a moſt dry matter, doe ſhatter in ſunder all that withſtands them, but doe not burne at all; others which are of ſomewhat a more humid nature, burne no more than the former, but onely blacke ſuch things as they touch; Laſtly others ſome of a more ſubtile and tenuous matter, whoſe nature (as *Seneca* ſaith) wee muſt not doubt to be divine, if but for this reaſon, that they will melt gold and ſilver, not harming the purſe; a ſword, not hurting the ſcabbard; the head of a Lance, not burning the wood, and ſhed wine not breaking the veſſell.

The wonderfull nature of ſome lightning.

According to which decree I can grant, that theſe Lightnings which breake in ſunder, melte and diſſipate, and performe other effects ſo full of admiration, are like in ſubſtance to the ſhot of great Ordinance; but not theſe which carry with them fire and flame.

A Hiſtorie.

In proofe whereof there comes into my minde the hiſtorie of a certaine Souldier, out of whoſe thigh I remember I drew forth a Bullet wrapped in the taffety of his breeches, which had not any ſigne of tearing or burning. Beſides, I have ſeene many who not wounded, nor ſo much as touched, yet notwithſtanding have with the very report & winde of a Cannon bullet, ſliding cloſe by their eares, fallne downe for dead, ſo that their members becomming livid & black, they have dyed by a Gangrene enſuing thereupon. Theſe and ſuch effects are like the effects of Lightnings which wee lately mentioned, and yet they beare no ſigne nor marke of poyſon. From whence I dare now boldly conclude, that wounds made by Gunſhot are neither poyſoned, nor burnt.

Why the wounds made by Gunſhot ſome few yeares agone were ſo deadly.

But ſeeing the danger of ſuch wounds in theſe laſt civill warres hath beene ſo great, univerſall and deadly to ſo many worthy perſonages and valiant men, what then may have beene the cauſe thereof, if it were neither combuſtion, nor the venenate qualitie of the wound? This muſt wee therefore now inſiſt upon and ſomewhat hardily explaine.

Thoſe who have ſpent all their time in the learning and ſearching out the myſteries of Naturall Philoſophie, would have all men thinke and beleeve, that the foure Elements have ſuch mutuall ſympathy, that they may bee changed each into other; ſo that they not onely undergoe the alterations of the firſt qualities which are heate, coldneſſe, dryneſſe and moiſture, but alſo the mutation of their proper ſubſtances by rarefaction and condenſation. For thus the fire is frequently changed into ayre, the ayre into water, the water into aire, and the water into earth; and on the contrary, the earth into water, the water into aire, the aire into fire; becauſe theſe 4. firſt bodies have in their common matter enjoyed the contrary and fighting, yet firſt and principall qualities of all.

The cauſe of the tranſmutation of the Elements.

Whereof we have an example in the *Ball-bellowes brought out of Germany, w^{ch} are made of braſſe, hollow and round; and have a very ſmall hole in them, whereby the water is put in, and ſo put to the fire; the water by the action thereof is rarified into aire, and ſo they ſend forth winde with a great noyſe, and blow ſtrongly as ſoone as they grow throughly hot. You may try the ſame with Cheſnuts, which caſt whole and undivided into the fire, preſently fly aſunder with a great cracke; becauſe the watry and innate humidity turned into winde by the force of the fire, forcibly breakes his paſſage forth. For the aire or winde raiſed from the water by rarifaction, requires a larger place, neither can it now bee conteined in the narrow filmes, or ſkinnes of the Cheſnut, wherein it was formerly kept. Iuſt after the ſame manner Gunpouder being fiered, turnes into a farre greater proportion of ayre, according to the truth of that Philoſophicall propoſition, which ſaith, Of one part of earth, there are made ten of water; of one of water, ten of aire; and of one of aire are made ten of fire. Now this fire not poſſible to be pent in the narrow ſpace of the peice, wherein the pouder was formerly conteined, endeavours to force its paſſage with violence, and ſo caſts forth the Bullet lying in the way, yet ſo that it preſently vaniſhes into aire, and doth not accompany the Bullet to the marke, or object, which it batters, ſpoiles and breakes aſunder. Yet the Bullet may drive the obvious aire with ſuch violence, that men are often ſooner touched therewith than with the bullet, and dye by having their bones ſhattered and broken without any hurt on the fleſh which covers them; which as wee formerly noted, it hath common with Lightning. We finde the like in Mines, when the pouder is once fiered, it remooves and ſhakes even mountaines of earth.

* Theſe bellowes here mentioned by the Author, are Bals made of Braſſe in forme of a peare, with a very ſmall hole in their leſſer ends: when you would fill them with water you muſt heate them very hot, and ſo the aire which is conteined in them will be exceedingly rarified, which by putting them preſently into water will be condenſate as much, and ſo will draw in the water to ſupply the place, *ne detur Vacuum*. Then put them into the fire, and it againe rarifying the water into aire will make them yeelde a ſtrong continued and forcible blaſt.

The cauſe of the report and blow of a Cannon.

In the yeare of our Lord 1562 a quantity of this pouder which was not very great, taking fire by accident in the Arcenall of Paris, cauſed ſuch a tempeſt, that the whole Citty ſhoke therewith, but it quite overturned divers of the neighbouring houſes, and ſhooke off the tyles and broke the windowes of thoſe which were further off; and to conclude, like a ſtorme of Lightning it laid many here and there for dead, ſome loſt their ſight, others their hearing, and otherſome had their limbes torne aſunder, as if they had beene rent with wilde horſes; and all this was done by the onely agitation of the aire into which the fired Gunpouder was turned; Iuſt after the ſame manner as windes pent up in hollow places of the earth which want vents. For in ſeeking paſſage forth, they vehemently ſhake the ſides of the Earth, and raging with a great noiſe about the cavities, they make all the ſurface thereof to tremble; ſo that by the various agitation one while up, another downe, it overturnes or carries it to another place. For thus we have read that *Megara* and *Ægina* anciently moſt famous Citties of Greece, were ſwallowed up and quite overturned by an earthquake; I omit the great bluſterings of the windes ſtriving in the cavities of the earth, which repreſent to ſuch as heare them at ſome diſtance, the fierce aſſailing of Citties, the bellowing of Bulles, the horrid roarings of Lions, neither are they much unlike to the roaring reports of Cannons. Theſe things being thus premiſed let us come to the thing we have in hand.

A Hiſtorie.

The cauſe of an Earthquake.

Amongſt things neceſſary for life, there is none cauſes greater changes in us than the aire; which is continually drawne into the Bowells appointed by nature, and whether we ſleepe, wake, or what elſe ſoever we doe, we continually draw in, and breath it out. Through which occaſion *Hippocrates* calls it Divine, for that breathing through this mundane Orbe, it embraces, nouriſhes, defends and keepes in quiet peace all things contained therein, friendly conſpiring with the ſtarres from whom a divine vertue is infuſed therein. For the aire diverſly changed and affected by the ſtarres, doth in like manner produce various changes in theſe lower mundane bodies. And hence it is that Philoſophers and Phyſitions doe ſo ſeriouſly wiſh us to behold and conſider the culture and habite of places, and conſtitution of the aire, when they treate of preſerving of health, or curing diſeaſes. For in theſe the great power and dominion of the aire is very apparent, as you may gather by the foure ſeaſons of the yeare; for in ſummer the aire being hot and dry, heats and dries our bodies; but in winter it produceth in us the effects of winters qualities, that is, of cold and moiſture; yet by ſuch order and providence of nature, that although according to the varieties of ſeaſons our bodies may be variouſly altered, yet ſhall they receive no detriment thereby, if ſo be that the ſeaſons reteine their ſeaſonableneſſe; from whence if they happen to digreſſe, they raiſe and ſtirre up great perturbations both in our bodies and mindes; whoſe malice we can ſcarſe ſhunne, becauſe they encompaſſe us on every hand, and by the law of nature enter together with the aire into the ſecret cabinets of our bodies both by occult and manifeſt paſſages. For who is he, that doth not by experience finde both for the commodity and diſcommodity of his health, the various effects of winds, (wherewith the aire is commixt) according as they blow from this or that Region, or Quarter of the world. Wherefore ſeeing that the South winde is hot and moiſt; the North wind cold and dry; the Eaſt wind cleare and freſh; the Weſt winde cloudy; it is no doubt but that the aire which we draw in by inſpiration carries together therewith into the bowells the qualities of that winde which is then prevalent. When wee reade in *Hippocrates*, that changes of times, whether they happen by different windes, or viciſſitude of ſeaſons, chiefly bring diſeaſes; For northerly winds doe condenſe, and ſtrengthen our bodies, and makes them active, well coloured and daring, by reſuſcitating and vigorating the native heate. But ſoutherne windes reſolve and moiſten our bodies, make us heavy-headed, dull the hearing, cauſe giddineſſe, and make the eyes and body leſſe agile; as the Inhabitants of *Narbon* finde to their great harme, who are otherwiſe ranked among the moſt active people of France. But if wee would make a compariſon of the ſeaſons and conſtitutions of a yeare, by *Hippocrates* decree Droughts are more wholeſome and leſſe deadly than Raines; I judge for that too much humiditie is the mother of putrifaction, as you learne by theſe countries which are blowne upon by a winde from Sea: For in theſe fleſh which is kept for foode, putrefies in the ſpace of an houre; and ſuch ulcers as in other places are eaſily and quickly healed, doe there by the conflux and collection of matter become inveterate and contumacious. Therefore as when the ſeaſons of the yeare ſucceſſively fall out agreeable to their nature, and when each ſeaſon is ſeaſonable, then either we are not ſicke at all, or aſſuredly with leſſe danger. So on the contrary the perfect conſtitution and health of our bodies becomes worſe and decaies, when the ſeaſons of the yeare are depraved and perverted in time and temper.

How the aire becomes hurtfull,

Aphor. 17. ſect. 3.

Fleſh quickly putrifies in maritime places.

Now ſeeing that theſe many yeares the foure ſeaſons of the yeare have wanted their ſeaſonableneſſe, the ſummer wanting his uſuall heate, and the winter its cold, and all things by moiſture and the dominion of the ſoutherne windes have beene humid and languide, I thinke there is none ſo ignorant in naturall Philoſophie and Aſtrologie, who will not thinke that the cauſes of the malignitie and contumacie of thoſe deſeaſes which have ſo long afflicted all France, are not to bee attributed to the aire and Heavens. For otherwiſe, whence have ſo many peſtilent and contagious diſeaſes tirannized over ſo many people of every age, ſex and condition? whence have ſo many catarrhes, coughs and heavineſſes of the head, ſo many pleuriſies, tumors, ſmall poxes, meazells, and Itches not admitting of digeſtion and remedies preſcribed by Art? Whence have we had ſo many venemous creatures, as Toades, Graſhoppers, Caterpillers, Spiders, Waſpes, Hornets, Beetles, Snailes, Vipers, Snakes, Lizards Scorpions and Efts or Nutes, unleſſe from exceſſive putrefaction which the humidity of the aire, our native heate being liquid and dull, hath cauſed in us, and the whole kingdome of France? Hence alſo proceedes the infirmity of our native heate, and the corruption of the blood and humors whereof we conſiſt, which the rainy Southwind hath cauſed with its ſultry heate. Wherefore in theſe laſt yeares I have drawne little blood, which hath not preſently ſhewed the corruption of its ſubſtance by the blacke or greeniſh colour, as I have diligently obſerved in all ſuch as I have bled, by the direction of Phyſitions, either for prevention of future, or cure of preſent diſeaſes. Whence it comes to paſſe that the fleſhy ſubſtance of our bodies could not but be faulty both in temper and conſiſtence; ſeeing that the blood whence it is generated had drawne the ſeeds of corruption from the defiled aire. Whence it fell out, that the wounds which happened with loſſe of ſubſtance, could be ſcarſe healed or united, becauſe of the depraved nature of the blood. For ſo the wounds and ulcers of theſe which are troubled with the Dropſie, whoſe blood is more cold or wholly wateriſh; ſo of Leprous perſons, whoſe blood is corrupt, and laſtly of all ſuch as have their bodies replete with ill juice, or elſe are Cachecticke, will not eaſily admit of cure. Yea aſſuredly if but the very part which is hurt ſwerve from its native temper, the wound will not eaſily bee cured.

In what bodies ulcers and wounds are not eaſily cured.

Therefore ſeeing all theſe things, both the putrefaction of the Aire, and depraved humors of the body, and alſo the diſtemper of the affected parts conſpired together to the deſtruction of the wounded, what marvaile was it, if in theſe late civill warres, the wounds which were for their quantity ſmall, for the condition of the wounded parts but little, have cauſed ſo many and grievous accidents and laſtly death it ſelfe? Eſpecially, ſeeing that the Aire which encompaſſeth us, tainted with putrefaction corrupts and defiles the wounds by inſpiration and expiration, the body and humours being already diſpoſed, or inclined to putrefaction.

Now there came ſuch a ſtincke, which is a moſt aſſured ſigne of putrefaction, from theſe wounds when they were dreſſed, that ſuch as ſtood by could ſcarſe endure it, neither could this ſtinke bee attributed to the want of dreſſing, or fault of the Chirurgion; for the wounds of the Princes and Nobility ſtunke as ill as theſe of the common Souldiers. And the corruption was ſuch, that if any chanced to bee undreſt for one day, which ſometimes happened amongſt ſuch a multitude of wounded perſons, the next day the wound would be full of wormes. Beſides alſo, which furthermore argues a great putrifaction of humors, many had Abſceſſes in parts oppoſite to their wounds, as in the left knee, when as the right ſhoulder was wounded; in the left arme, when as the right Leg was hurt. Which I remember befell the King of *Navarre*, the Duke of *Nevers*, the Lord *Rendan* and divers others. For all men had nature ſo overcharged with abundance of vicious humors, that if it expelled not part thereof by impoſtumes to the habite of the body, it certainly otherwiſe diſpoſed of it amongſt the inner parts of the body; for in diſſecting dead bodies, wee obſerved that the Spleene, Liver, Lungs, and other Bowells were purulent, and hence it was that the patients by reaſon of vapours ſent from them to the heart were troubled with continuall feavers. But the Liver and all the veinous parts being polluted, and ſo the generation of the laudible blood hindred, they languiſhed for want of fitting nouriſhment. But when the Braine by vapours was drawne in to ſympathize with the reſt, they were moleſted with Ravings and Convulſions. Wherefore if any thing ſucceeded unproſperouſly in ſo great malignancie of wounds, the Chirurgion was not to be blamed, for that it were a crime to fight againſt God and the Aire, wherein the hidden ſcourges of the divine juſtice lye hid. Therefore, if according to the minde of the great ***Hippocrates***, who commands to bring all contuſed wounds to ſuppuration, that ſo they may be healed, wee endeavoured to cure with ſuch medicines wounds made with Gunſhot, and therefore contuſed; who can rightly be angry with us, if we performed it not ſo well, by reaſon of theſe putrifactions, gangreens and mortifications which proceeded from the corrupt Aire, for all that we uſed not onely ſuppuratives, but were oft times forced to uſe other medicines, ſo long turning aſide from the cure of the diſeaſe, untill we had orecome the ſymptomes which much endanger the patient and cuſtomarily happen upon ſuch wounds, as alſo upon thoſe which are made with a ſword or any other kind of weapon; As ſhall plainly appeare in the following treatiſe, to which it now ſeemes high time that we betake our ſelves.

An argument of great putrifaction of the humors.

All contuſed wounds muſt bee brought to ſuppuration.

CHAP.

CHAP. I.

A diviſion of wounds drawne from the variety of the wounded parts, and the Bullets which wound.

A diviſion of wounds from the variety of the wounded parts.

From the difference of Bullets.

Wounds made by Gunſhot are uſually round.

ALl wounds which are made in mans body by Gunſhot, whether ſimple or compound, are accompanied with contuſion, dilaceration, diſtemper and ſwelling. I ſay, all theſe poſſeſſe eyther the noble parts, or ignoble, the fleſhy, nervous or bony, ſome whiles with rending and tearing aſunder the larger veſſells, ſometimes without harming them. Now theſe wounds are onely ſuperficiary, or elſe peirce deepe and paſſe quite through the body. But there is alſo another diviſion of theſe wounds taken from the variety of the Bullets wherewith they are made. For ſome bullets are bigger, ſome leſſe, ſome betweene both, they are uſually made of Lead, yet ſometimes of Steele, Iron, Braſſe, Tinne, ſcarſe any of Silver, much leſſe of Gold. There ariſes no difference from their figure; for almoſt all kinds of wounds of this nature are round. From theſe differences, the Chirurgion muſt take his Indications what to doe, and what medicines to apply. The firſt care muſt be, that he thinke not theſe horrid and maligne ſymptomes, which uſually happen upon theſe kinds of wounds, to ariſe from combuſtion, or poyſon carried with the Bullet into the wounded part, and that for theſe reaſons we have formerly handled at large. But rather let him judge they proceede from the vehemencie of the contuſion, dilaceration and fracture, cauſed by the Bullets too violent entry into the nervous and bony bodies. For if at any time the bullet ſhall onely light upon the fleſhy parts, the wounds will be as eaſily cured, as any other wound uſually is, which is made with a contuſing and round kind of weapon, as I have often found by frequent experience, whileſt I have followed the warres, and performed the part of a Chirurgion to many Noble-men and common Souldiers, according to the counſell of ſuch Phyſitions as were there overſeers of the cure.

CHAP. II.

Of the ſignes of wounds made by Gunſhot.

Signes of wounds from their figure.

From their colour.

From the feeling the blow.

From the bleeding.

From the heate of the wound.

WOunds made by Gunſhot are knowne by their figure, which is uſually round; by their colour, as when the native colour of the part decayes, and in ſtead thereof a livid, greeniſh, violet or other colour ſucceeds; by the feeling or ſenſe of the ſtroke, when in the very inſtant of the receiving thereof, hee feeles a heavy ſenſe as if ſome great ſtone, or peice of Timber, or ſome ſuch other weightything had falne upon it; by the ſmall quantity of blood which iſſues out thereat, for when the parts are contuſed, within ſome ſmall while after the ſtroake they ſwell up, ſo that they will ſcarſe admit a Tent, whence it is that the blood is ſtopped, which otherwiſe would flow forth of the orifice of the wound; by heate, which happens eyther by the violentneſſe of the motion, or the vehement impulſion of the aire, or the attrition of the contuſed parts, as the fleſh and nerves.

Whence theſe wounds are ſo much contuſed.

Alſo you may conjecture that the wounds have beene made by Gunſhot, if the bones ſhall be broken, and the ſplinters thereof by pricking the neighbouring bodies cauſe defluxion and inflammation. But the cauſe that the Bullet makes ſo great a contuſion is, for that it enters the body not with any points or corners, but with its round and ſphericall body, which cannot penetrate but with mighty force; whence it commeth to paſſe that the wound lookes blacke, and the adjacent parts livid. Hence alſo proceede ſo many grievous ſymptomes, as paine, Defluxion, Inflammation, Apoſtumation, Convulſion, Phrenſie, Palſie, Gangreen and mortification, whence laſtly death enſues. Now the wounds doe often caſt forth virulent and very much ſtincking filth, by reaſon of the great contuſion, and the rending and tearing of the neighbouring particles. A great aboundance of humors flow from the whole body, and fall downe upon the affected parts, which the native heate thereof being diminiſhed forſakes, and preſently an unnaturall heate ſeazes upon it. Hither alſo tend an univerſall or particular repletion of ill humours, chiefely if the wounds poſſeſſe the nervous parts as the joynts. Verily neither a Stagge with his horne, nor a flint out of a ſling can give ſo great a blow, or make ſo large a wound, as a Leaden or Iron Bullet ſhot out of a Gun, as that which going with mighty violence, peirces the body like a Thunderbolt.

CHAP. III.

How theſe wouuds muſt be ordered at the firſt dreſſing.

Strange bodies muſt firſt be pulled forth.

THe wound muſt forthwith be enlarged, unleſſe the condition of the part reſiſt, that ſo there may be free paſſage forth both for the *Sanies*, or matter, as alſo for ſuch things as are farced, or otherwiſe contained therein; ſuch as are peices of their cloathes, bombaſt, linnen, paper, peices of Maile or Armour, Bullets, Haile-ſhot, ſplinters of bones, bruiſed fleſh and the like, all which muſt be plucked forth with as muſt celerity and gentleneſſe as may bee. For preſently after the receiving of the wound the paine and inflammation are not ſo great, as they will be within a ſhort time after. This is the principall thing in performance of this worke, that you place the patient juſt in ſuch a poſture as he was in at the receiving of the wound; for otherwiſe the various motion and turning of the Muſcles will eyther hinder or ſtraiten the paſſage forth of the conteined bodies. You ſhall if it be poſſible, ſearch for theſe bodies with your finger, that ſo you may the more certainly and exactly perceive them. Yet if the Bullet bee entred ſomewhat deepe in, then you ſhall ſearch for it with a round and blunt probe, leſt you put the patient to paine; yet often times you ſhall ſcarce by this meanes finde the Bullet. As it happened to the Marſhall of *Briſſac* in the ſeige of *Parpignan*, who was wounded in his right ſhoulder with a Bullet, which the Chirurgions thought to have entred into the capacitie of his body. But I, wiſhing the patient to ſtand juſt in the ſame manner as hee did when hee received the wound, found at length the place where the Bullet lay, by gently preſſing with my fingers, the parts neare the wound, and the reſt which I ſuſpected; as alſo by the ſwelling, hardneſſe, paine and blackneſſe of the part, which was in the lower part of the ſhoulder neare unto the eight or ninth ſpondill of the backe. Wherefore the bullet being taken forth by making inciſion in the place, the wound was quickly healed and the Gentleman recovered. You ſhall well obſerve this, and rather beleeve the judgement of your fingers, than of your probe.

The manner how to draw them forth.

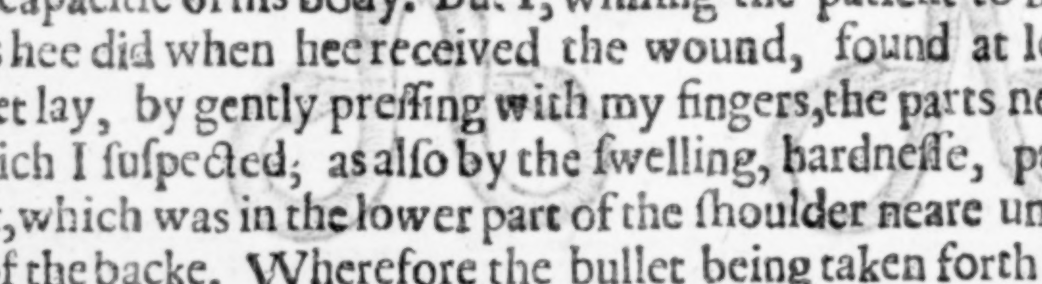
CHAP. IIII.

A deſcription of fit Inſtruments to draw forth Bullets and other ſtrange bodies.

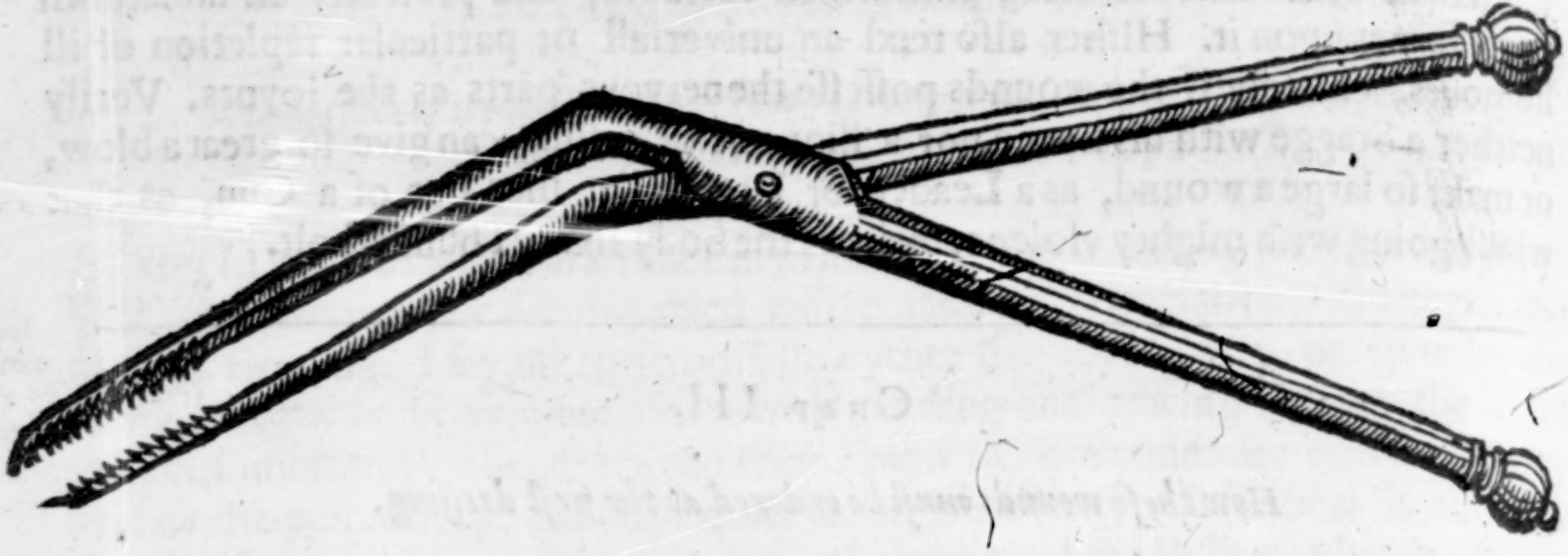
BOth the magnitude and figure of Inſtruments fit for drawing forth of Bullets and other ſtrange bodies, are various according to the diverſity of the incident occaſions. For ſome are toothed, others ſmooth, others of another figure and bignes; of all which ſorts the Chirurgion muſt have divers in a readineſſe, that he may fit them to the bodies and wound, and not the wounds and bodies to his Inſtruments.

The Deliniation of ſuch like Inſtruments.

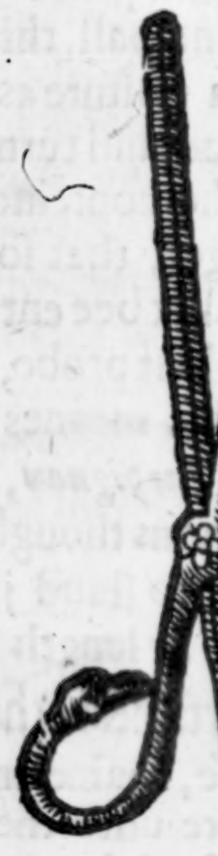
A toothed Crowes-Bill.



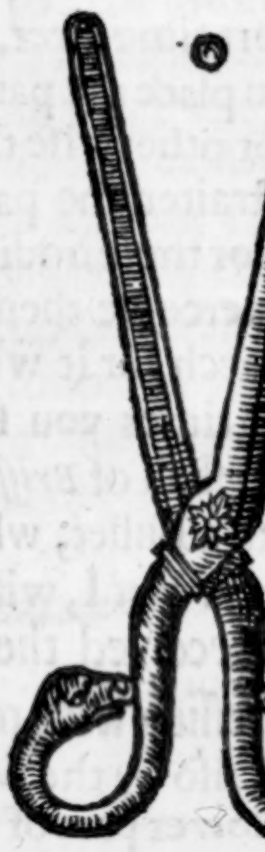
The crooked Cranes-bill, with teeth like a Saw.



The ſtraight Cranes-bill being alſo toothed, fit for drawing forth haile-ſhot, pieces of armour, ſplinters of bones, and ſuch things as lye deepe within.

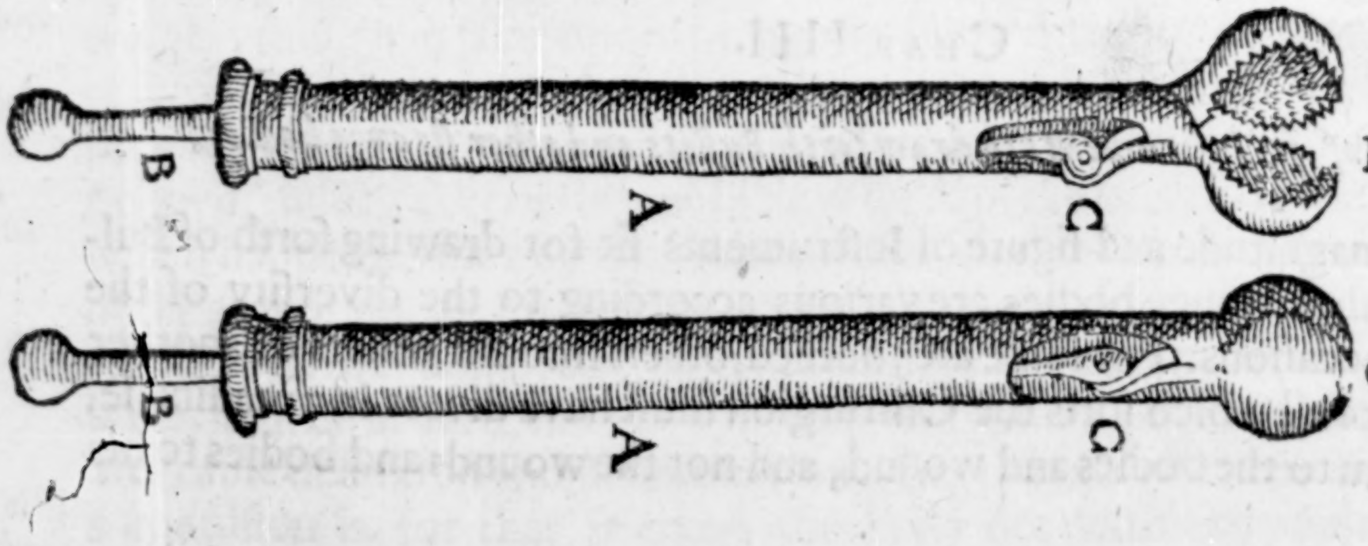


The Ducks-bill.



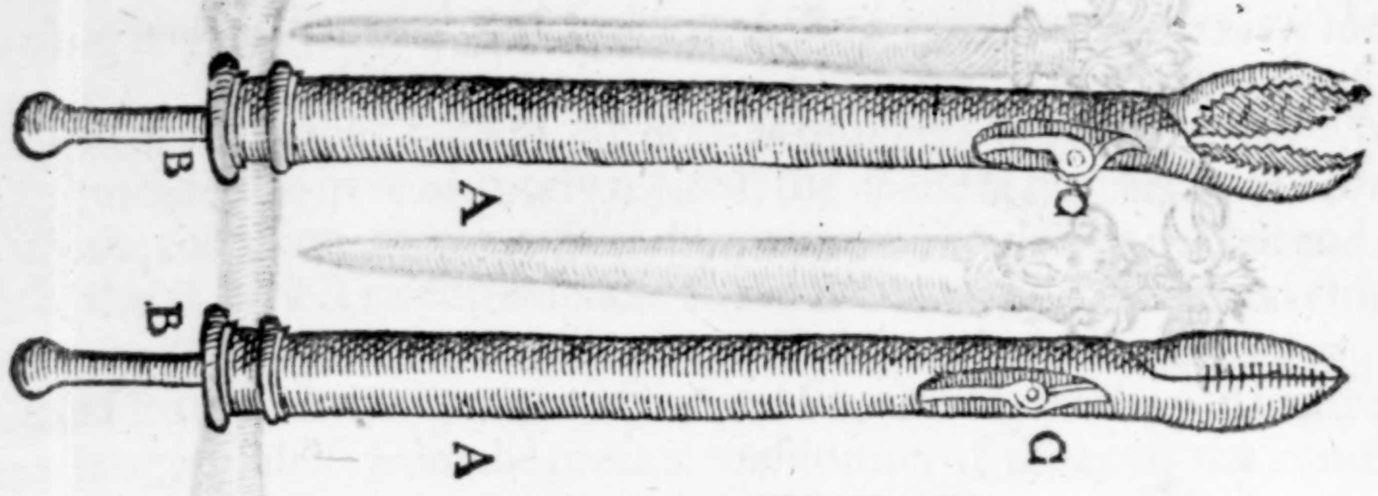
This Ducks bill hath a large round and toothed cavitie in the end, for ſo it more eaſily taketh hold of the Bullet when it lies amongſt much Fleſh.

Another Inſtrument fit for drawing forth of Bullets, which may be termed, a Catch-bullet.

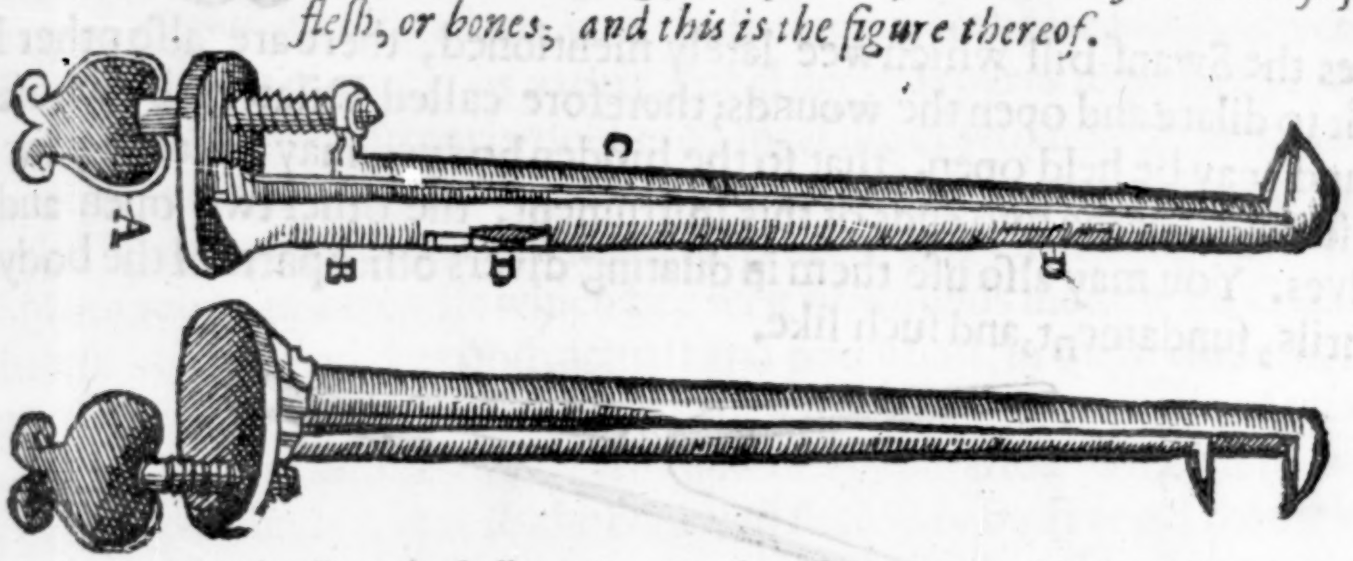


A. *Shewes the Trunke.*
B. *Shewes the rod, or ſtring, which opens & ſhuts the joynt.*
C. *The joynt.*

Another Catch-bullet called a Lizards-noſe, made for drawing out of bullets which are ſomewhat flatted, by ſtriking upon a bone.

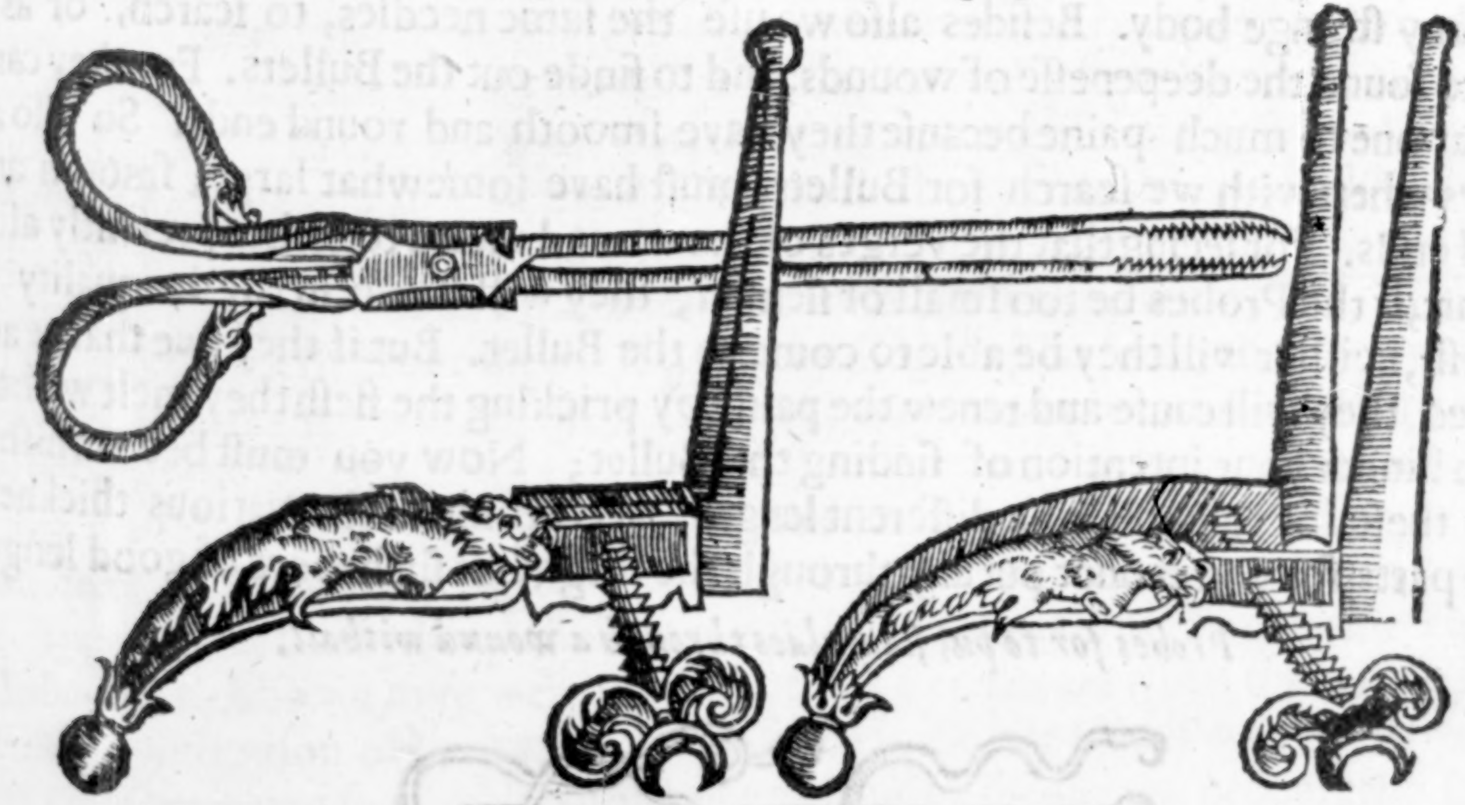


The Parrots-beake is made for drawing forth peices of maile thruſt into the fleſh, fleſh, or bones; and this is the figure thereof.



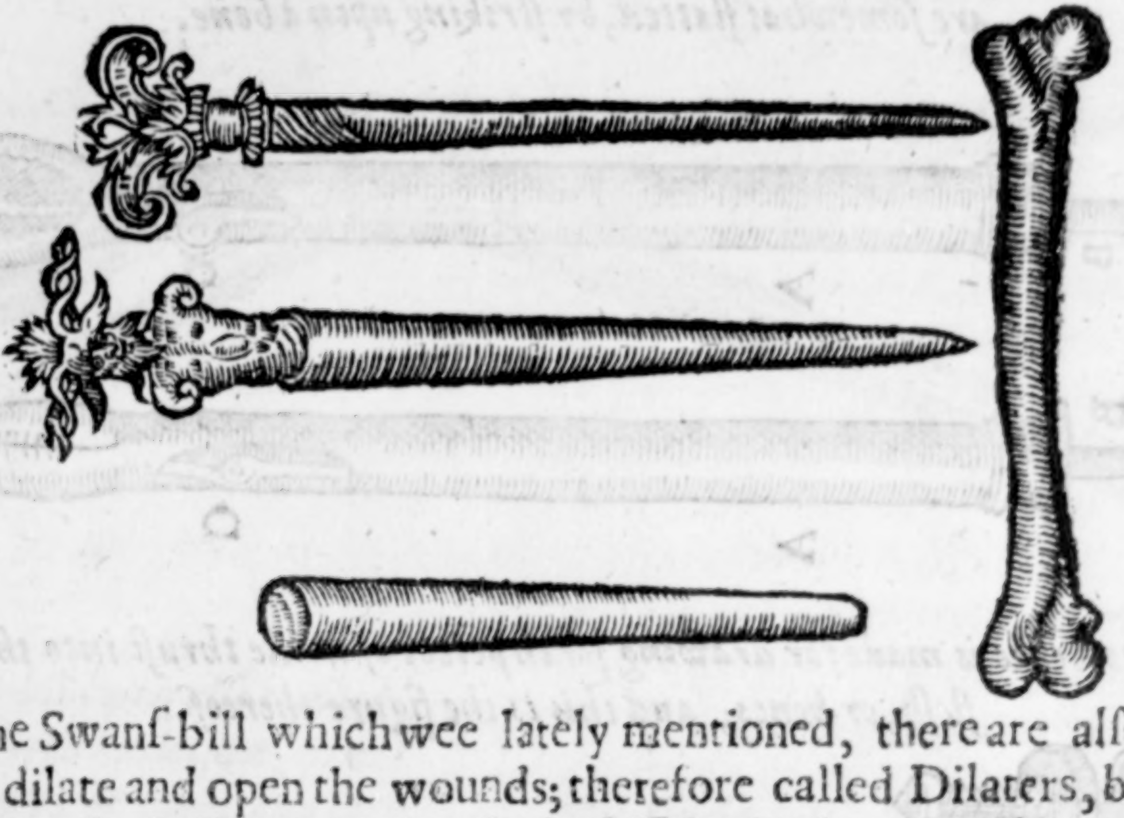
A. Shewes the ſcrew pin. B *The hollowed part which receives, the round part noted with.* C. *which is opened and ſhut by the ſcrew.* D. D. *falls, or ſtayes, which governe the running branch.*

The Swannes bill opens with a ſcrew: you may with this dilate the wounds, and ſo put in a ſtreight Cranes-bill, as pincers to plucke forth ſtrange bodyes. The figure of both are heere expreſt.

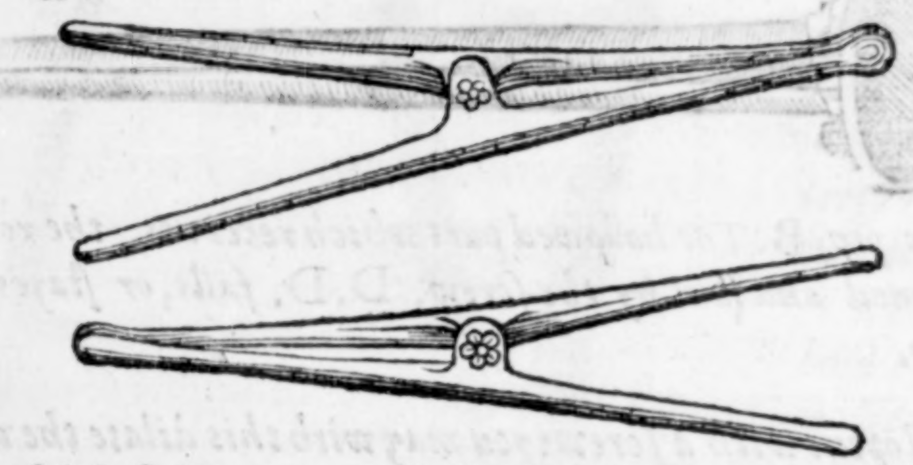


But if theſe ſtrange bodyes, eſpecially bullets and haileſhot, be not too deepe in the wound, they may be taken forth with your Levatorie, or elſe by the helpe of theſe Gimblets. Theſe Gimblets are ſcrewed into their pipes, or canes, and enter with their ſcrewed points into the Bullets, if that they be of Lead or Tin, and of no harder mettall; and ſo being faſtened in them, bring them out with them.

The figure of the Gimblet with his pipe, or cane.



Beſides the Swanſ-bill which wee lately mentioned, there are alſo other Inſtruments fit to dilate and open the wounds; therefore called Dilaters, by whoſe helpe the wound may be held open, that ſo the hidden bodyes may be ſeene; for when you preſſe together the two ends of this Inſtrument, the other two open and dilate themſelves. You may alſo uſe them in dilating divers other parts of the body, as the Noſe-thrils, fundament, and ſuch like.

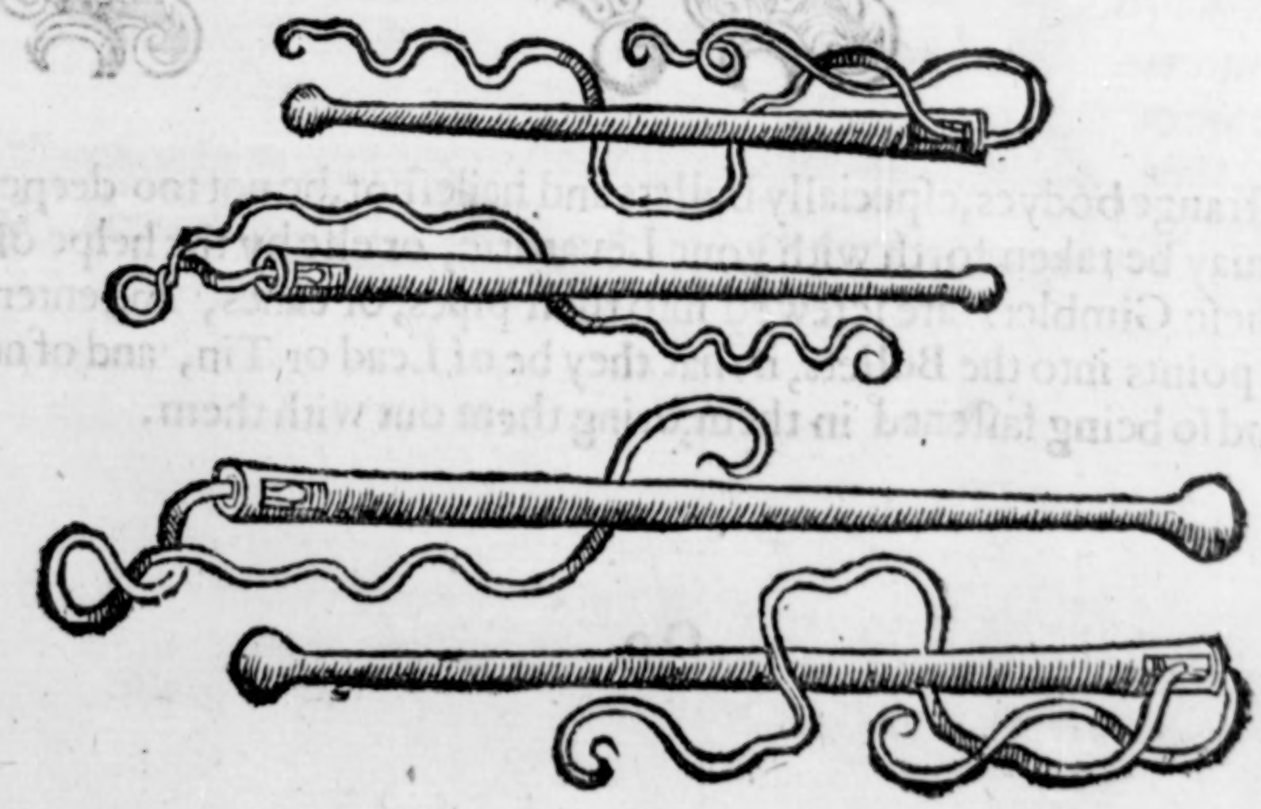


Dilaters.

The Inſtruments which follow are called Seton needles, or Probes; whoſe uſe is, to draw through a flamula, ſo to keepe the wound open, that you may the better take forth any ſtrange body. Beſides alſo we uſe the ſame needles, to ſearch, or as it were to ſound the deepeneſſe of wounds, and to finde out the Bullets. For they cannot put one to much paine becauſe they have ſmooth and round ends. So alſo all Probes wherewith we ſearch for Bullets, muſt have ſomewhat large, ſmooth and round ends. For ſeeing that the verges of the wound meete together preſently after the hurt, if the Probes be too ſmall or ſlender, they will ſticke in the inequality of the fleſh, neither will they be able to come to the Bullet. But if they bee ſharpe and pointed they will cauſe and renew the paine by pricking the fleſh they melt withall, and ſo hinder your intention of finding the Bullet; Now you muſt bee furniſhed with theſe Inſtruments of a different length, according to the various thickneſſe of the parts; for you cannot put any through the thigh but ſuch as are of good length.

What probes fit to ſearch theſe wounds.

Probes for to put ſlamulaes through a wound withall.



CHAP. IX.

what dreſsing muſt firſt be uſed, after the ſtrange bodies are pluckt or drawn out of the wound.

WHen the ſtrange bodyes are drawne or pluckt out of the wound, by theſe meanes we have formerly recited, the chieſe of the cure muſt be to heale the contuſion, and amend the diſtemper of the aire if it bee hot and moyſt, that is, ſubject to putrefaction. This ſhal be don by medicins taken inwardly, applied outwardly, and put into the wound. Things to be inwardly uſed in dyet and Pharmacie I leave to the judgement of learned Phyſitions; for the particular and topicke medicines, (unleſſe from the preſent conſtitution of the ayre, the condition of the wounded part, or from ſome other cauſe there be danger of a Gangreene) you muſt uſe ſuppuratives, as you uſually doe in contuſions; ſuch as are oyle of Whelpes and that which we call a digeſtive; you muſt chiefely forbeare ſuppuratives, when as the wounded part is of a nervous nature. For al nervous parts require dryer medicines than fleſhy, as we have formerly delivered ſpeaking of wounds of the joynts; wherefore in wounds of the joynts and nervous parts you ſhall uſe more venice Turpentine than oyle. *Laurentius Iobertus* the Kings Phyſition and Chancellour of the Vniverſity of Mompelier, in a treatiſe which hee writ of wounds made with Gunſhot, forbids the uſe of Eſcharotickes both actuall and potentiall, in theſe wounds, if ſimple; for that they induce paine, inflammation, a feaver, Gangræne and other deadly ſymptomes. Beſides alſo an eſchar will hinder ſuppuration, which is to bee deſired in this kinde of woundes, that ſo the contuſed fleſh may be ſevered from the ſound, leaſt it be drawne to putrefaction by contagion. Which eaſily happens when an Eſchar is drawne, as a barre over it, for then the excrementitious humor remaines longer in the part, and the putridinous vapours hindred from paſſing forth, are encreaſed, and carryed from the leſſer veſſells to the bigger, and ſo over all the body. Wherefore, when you ſuſpect putrefaction, letting alone ſuppuratives, uſe in the firſt place ſuch things as reſiſt putrefaction, as this following oyntment. ℞. *pulver. alumin. rocha, viridis æris, Vitrioli romani, mellis roſat. an.* ℥ij. *aceti boni quantum ſufficit, bulliant omnia ſimul ſecundum artem, & fiat medicamentum ad formam mellis*. This by reaſon of the heate and ſubtlety of the ſubſtance, hath a faculty to induce and attenuate the humors, as alſo to call forth the native heate drawne in and diſſipated by the violent and forcible entrance of the Bullet into the body; furthermore alſo it corrects the venemous contagion of the virulent humor. Now this medicine ſhall be uſed, diſſolved in Venegar or *aqua vitæ*, and be put into the wound with tents, or pledgets. The tents which ſhall bee uſed at the firſt dreſſing muſt be ſomewhat long and thicke, that by dilating the wound, they may make way for applycation of other remedies; otherwiſe you may make injection with a ſyring, that ſo it may penetrate the more powerfully. But this deſcribed *Egyptiacum* ſhall be tempered according to the condition of the affected parts, for the nervous parts will bee offended with it as being too acride; but it may be qualified by admixture of oyle of Turpentine and Saint Iohn-wort. Alſo we may well be without this *Egyptiacum* when there is no ſuch peſtilent conſtitution of the ayre, as was ſeene in the late Civill warres. After the uſe of *Egyptiacum* you ſhall with emollient and lenitive medicines procure the falling away of the Eſchar, and ſuch a medicine is this following oyle, being ſomewhat more than warme.

A Caution in the uſe of ſuppuratives.

Why Eſcharotickes muſt be eſchewed in theſe kinds, if they be ſimple.

How an Eſchar may cauſe putrefaction.

The deſcription of an *Egyptiacum*.

How and when to temper this *Egyptiacum*.

℞. *Olei violati lib.* iiij. *in quibus coquantur catelli duo nuper nati, uſque ad diſſolutionem oſsium, addendo vermium terreſtrium, ut decet præparatorum,* ℔. j. *coquantur ſimul lento igne, deinde fiat expreſsio ad uſum, addendo terebinth. venet.* ℥iij. *aquæ vitæ* ℥j. This oyle hath a wonderful force to aſſwage paine, to bring the wound to ſuppuration, & cauſe the falling away of the Eſchar. This enſuing oyle is made more eaſily. ℞. *olei ſeminis lini, & lilior. an.* ℥iij. *unguent. baſilic.* ℥j. *liquefiant ſimul & fiat medicamentum*, put of this a ſufficent quality into the wound; for this being applyed indifferent hot, hath power to aſſwage pain, to ſoften and humect the orifice of the wound, and help forwards ſuppuration, which is the true manner of curing theſe kinde of wounds, according to

The oyle of Whelpes a digeſtive, anodyne, and fit medicine to procure the falling away of an Eſchar.

Lib. de ulcer.

the rule of *Hippocrates*, which wiſhes every contuſed wound to bee preſently brought to ſuppuration, for ſo it will be leſſe ſubject to a Phlegmon; and beſides, all the rent and bruiſed fleſh muſt putrifie, diſſolve and turne to quitture, that new and good fleſh may be generated in ſteed thereof.

The faculties of the powder of Mercury.

The force of calcined vitrioll.

How wounds made by Gunſhot may be combuſt.

Scarification.

Laurentius Ioubertus much commends this following medicine, of whoſe efficacie, as yet, I have made no triall. ℞. *pulver. mercur. bis calcinati*, ℥j, *adipis porci recentis, vel butyri recentis*, ℥viij. *Camphora in aqua vita diſſolutæ*, ʒij. *miſce omnia ſimul, addendo tantillum olei liliorum, aut lini*. Experience taught him, and reaſon alſo ſhewes, that this kinde of remedy is very commendable; for the powder of Mercury, if mixed with a groſſe and humecting matter, doth in a ſhort ſpace turne the bruiſed fleſh into *pus*, without cauſing any great paine. For the Camphire, whether it be hot or cold, in temper, it much conduces to that purpoſe, by reaſon of the ſubtlety of the parts, whereof it conſiſts. For by meanes of this quality the medicines enter with more facility into the affected bodyes, and performe their parts; beſides alſo Camphire reſiſts putrifaction. Some droppe into the wound *aqua vita*, wherein they have diſſolved ſome calcined vitrioll. Which kind of remedy is not ſuppurative, but yet much reſiſts putrefaction, ſo that we may uſe it with good ſucceſſe, when the weather is hot, moyſt, and foggie. But when the wound is made very neere at hand, it cannot but be burnt by the flame of the powder; in which remedies uſed for burnes, will be uſefull, not omitting ſuch as are fit for contuſions. But for theſe parts which lye next the wound, you ſhall not, unleſſe at the firſt dreſſing apply, refrigerating and aſtringent things, but rather emollient and ſuppurative. For thoſe things which have a refrigerating faculty, weaken the part, and hinder ſuppuration. For aſtringents conſtipate the skin, which is the cauſe, that the putride vapours ſhut up and hindred from tranſpiration and paſſage forth, a gangrene and mortification eaſily ſeaze upon the part. But if the contuſion be great and diffuſe it ſelfe more largely over the fleſh; the part muſt be much ſcarified; that ſo the contuſed and concreat blood, and therefore ſubject to putrefaction, may be evacuated. But for theſe parts, which ſomewhat further diſtant from the wound encompaſſe the contuſed fleſh, they require refrigerating and ſtrengthening medicines, ſo to hinder the falling downe and ſetling of the humor in that part; ſuch is this enſuing medicine. ℞. *Pul. boli. armen. ſanguin. Dracon. Myrrhæ. an.* ℥j *ſucci ſolan. ſempervivi, portulac. an.* ℥iß. *album* iiij. *ovorum. oxyrhodin. quantum ſufficit; fiat linimentum, ut decet*. You may uſe this, and the like untill the ſuſpected ſymptome, be paſt feare. Neither muſt you have leſſe care, of binding up and rolling the part, than of your medicines; for it doth not a little conduce to the cure, to binde it ſo fitly up as it may be without paine. The wound at the beginning of the cure, muſt be dreſſed but once in 24. houres, that is, untill the wound come to ſuppuration; but when the quitture begins to flow from it, and conſequently the paine and feaver are encreaſed, it ſhall be dreſt twiſe a day, that is every twelve houres. And when the quitture flowes more abundantly than uſuall, ſo that the collection thereof is very troubleſome to the Patient, it will be requiſite to dreſſe it every 8 houres; that is thriſe a day. Now when as this aboundant effluxe is ſomewhat ſlaked, and begins to decreaſe, it will ſuffice to dreſſe it twiſe a day. But when the ulcer is filled with fleſh, and conſequently caſts forth but little matter, it will ſerve to dreſſe it once a day, as you did at the firſt.

An Aſtringent repelling medicine.

The binding up.

How oft the wound muſt be dreſt in a day.

Chap. VI.

How you ſhall order it at the ſecond dreſſing.

Why wounds made by Gunſhot are ſo long before they come to ſuppuration.

AT the ſecond and following dreſſings, unleſſe you ſuſpect putrifaction, and a Gangrene, you ſhall onely put into the wound ſome of the oyles formerly deſcribed, adding to them the yolkes of ſome egges and a little ſaffron; and uſe this medicine, untill the wound come to perfect ſuppuration. Here you muſt note this, that theſe kindes of wounds are longer before they come to ſuppuration, than other wounds made by any other ſort of weapon; both for that the bullet, as alſo the ayre which it violently carries before it, by much bruiſing the fleſh, on every ſide, diſſipates the native heate, and exhauſts the ſpirits of the part. Which things hinder digeſtion, and often cauſe the matter to ſtinke, as alſo many other pernitious ſymptomes. Yet moſt uſually *pus* or quitture appeares within three or foure dayes, ſooner and later according to the various complexion, and temperament of the patients bodyes, and the condition of the ambient ayre in heate and cold. Then by little and little you muſt come to deterſives, adding to the former medicine ſome Turpentine waſhed in Roſe, Barly, or ſome other ſuch like water, which may waſh away the biting thereof. If the encompaſſing ayre be very cold, you may to good purpoſe adde ſome *aqua vitæ*; for by *Galens* preſcript, we muſt uſe hot medicines in winter, and leſſe hot in ſummer. Then in the next place uſe deterſives, as ℞. *aquæ decoctionis hordei quantum ſufficit, ſucci plantaginis, appij, agrimon. centaurei minoris, an.* ℥j, *bulliant omnia ſimul; in fine decoctionis adde terebinthinæ venetæ* ℥iij. *mellis roſat.* ℥ij. *farin. hordei.* ʒiij. *croci* ℈j. Let them be all well mixed together and make a Mundificative of an indifferent conſiſtence. Or ℞. *ſucci clymeni, plantag. abſinth. appij, an.* ℥ij. *tereb. venet.* ℥4. *ſyrup. abſinth. & mellis roſ. an.* ℥ij. *bulliant omnia ſecundum artem, poſtea colentur, in colatura adde pulver. aloes, maſtiches, ireos Florent. far. hord. an.* ʒj. *fiat Mundificatiuum ad uſum dictum.* Or elſe ℞. *terebinth. venet. lotæ in aq. roſ.* ℥v. *olei roſ.* ℥j. *mellis roſ.* ℥iij. *myrrhæ, aloes, maſtich. ariſtoloch. rotundæ, an.* ʒſs. *far. hord,* ʒiij. *miſce.* Make a Mundificative, which you may put into the wound with tents, but ſuch as are neither too long, nor thicke, leſt they hinder the evacuation of the quitture and vapours, whence the wounded part will bee troubled with eroſion, paine, defluxion, inflammation, abſceſſe, putrefaction; all which ſeverally of themſelves, as alſo by infecting the noble parts, are troubleſome both to the part affected, as alſo to the whole body beſides. Wherefore you ſhall put into the wound no tents, unleſſe ſmall ones, and of an indifferent conſiſtence; leſt (as I ſayd) you hinder the paſſing forth of the matter, or by their hard preſſing of the part, cauſe paine, and ſo draw on maligne ſymptomes. But ſeeing tents are uſed both to keepe open a wound ſo long, untill all the ſtrange bodyes be taken forth, as alſo to carry the medicines, wherewithall they are annointed: even to the bottome of the wound. Now if the wound be ſinuous and deepe, that ſo the medicine cannot by that meanes arrive at the bottome and all the parts thereof, you muſt doe you buſineſſe by injections made of the following decoction. ℞. *aq. hord.* lib. 4. *agrimon. centaur. minor. pimpinellæ, abſinth. plantag. an. M.*ſs. *rad. ariſtoloch. rotund.* ʒſs. *fiat decoctio ad lib.* j. *in colatura expreſſa diſſolve aloes hepaticæ* ʒiij. *mellis roſ.* ℥ij. *bulliant modicum.* Inject ſome of this decoction, three or foure times into the wound, as often as you dreſſe the patient; and if this ſhall not be ſufficient to clenſe the filth, and waſte the ſpongious, putride and dead fleſh, you ſhall diſſolve therein as much *Ægyptiacum* as you ſhall thinke fit for the preſent neceſſity; but commonly you ſhall diſſolve an ounce of *Ægyptiacum* in a pint of the decoction. Verily *Ægyptiacum* doth powerfully conſume the proud fleſh which lyes in the capacity of the wound; beſides alſo it only workes upon ſuch kind of fleſh. For this purpoſe, I have alſo made triall of the powder of Mercury, and burnt Alome equally mixed together, and found them very powerfull, even almoſt as ſublimate, or Arſenicke, (but that theſe cauſe not ſuch paine in their operation.) I certainely much wonder at the largeneſſe of the Eſchar which ariſes by the aſperſiō of theſe powders. Many Practitioners would have a great quantity of the injection to be left in the cavityes of ſinuous ulcers, or wounds; which thing I could never allow of. For this contained humor cauſeth an unnaturall tenſion in theſe parts, and taints them with ſuperfluous moyſture, whereby the regeneration of fleſh is hindered; for that every ulcer as it is an ulcer, requires to be dryed, in *Hippocrates* opinion. Many alſo offend in the too frequent uſe of Tents; for as they change thē every houre, they touch the ſides of the wound, cauſe pain, & renew other maligne ſymptomes; wherefore ſuch ulcers as caſt forth more abundance of matter, I could wiſh rather to be dreſſed with hollow tents, like thoſe I formerly deſcribed to be put into wounds of the Cheſt. You ſhall alſo preſſe a linnen boulſter to the bottome of the wound, that ſo the parts themſelves may be mutually condenſed by that preſſure and the quitture thruſt forth; neither will it be amiſſe to let this boulſter have a large hole fitted to the orifice of the wound & end of the hollow tent and pipe, that ſo you may apply a ſpunge for to receive the quitture, for ſo the matter wil be more ſpeedily evacua-

Why Turpentine muſt be waſhed.

Gal. lib. 3. Meth.

A detergent medicine.

Why tents muſt be neither too long, nor thicke.

When you muſt uſe injections.

An Injection.

The quantity of *Egyptiacum* to be uſed in an injection.

Why none of the injection muſt be left in the wound.

Hollow tents or pipes

The manner of binding up the wound.

evacuated and ſpent, eſpecially if it be bound up with an expulſive ligature, beginning at the bottome of the ulcer, and ſo wrapping it up to the toppe. All the boulſters and rowlers, which ſhall be applyed to theſe kindes of wounds, ſhall be dipped in Oxycrate, or red wine, ſo to ſtrengthen the part, and hinder defluxion. But you muſt have a ſpeciall care, that you doe not binde the wound too hard, for hence will ariſe paine, hindring the paſſage forth of the putredinous vapours and excrements, which the contuſed fleſh caſts forth; and alſo feare of an *Atrophia*, or want of nouriſhment, the alimentary juyces being hindred from comming to the part.

CHAP. VII.

By what meanes ſtrange bodyes, left in at the firſt dreſsing, may be drawne forth.

Two cauſes that make ſtrange bodies hard to be taken forth.

IT divers times happens, that certaine ſplinters of bones, broken and ſhattered aſunder by the violence of the ſtroake, cannot be pulled forth at the firſt dreſſing, for that they either doe not yeeld or fall away, or elſe cannot be found by the formerly deſcribed inſtruments. For which purpoſe this is an approved medicine to draw forth that which is left behind.

℞. *radic. Ireos Florent. panac. & cappar. an.* ʒiij. *ariſtoloch. rotund. mannæ, thuris. an.* ʒj. *in pollinem redacta incorporentur cum melle roſar. & terebinth. venet. an.* ℥ij. or ℞. *reſin. pini ſiccæ* ℥iij. *pumicis combuſti & extincti in vino albo, radic. Ireos, ariſtolochiæ, an.* ʒß. *thuris* ʒj. *ſquamæ æris*, ʒij. *in pollinem redigantur, incorporentur cum melle roſato, fiat medicamentum.*

CHAP. VIII.

Of Indications to be obſerved in this kinde of wounds.

THe ulcer being clenſed and purged, and all ſtrange bodyes taken forth; natures endeavours to regenerate fleſh, and cicatrize it, muſt be helped forwards with convenient remedies, both taken inwardly, and applyed outwardly. To which things we may be eaſily and ſafely carryed by indications drawne, firſt from the eſſence of the diſeaſe, then from the cauſe; if as yet preſent it nouriſh the diſeaſe. For that which *Galen* ſayes, *Lib. 3. Meth.* that no indication may bee taken from the primitive cauſe and time; muſt bee underſtood of the time paſt, and the cauſe which is abſent. And then from the principall times of the diſeaſe, the beginning, encreaſe, ſtate, and declination; for each of theſe foure require their remedies. Others are taken from the temperament of the patient, ſo that no Chirurgion neede doubt, that ſome medicines are fit for cholericke, otherſome for phlegmaticke bodyes. Hither referre the indication taken from the age of the patient; alſo it is drawn from his dyet, for no man muſt preſcribe any ſlender diet to one who is alwayes feeding, as to him who is accuſtomed to eate but once, or twiſe a day. Hence it is that a dyet conſiſting onely of *Panada's* is more fit for Italians, than for French men; for we muſt give ſomewhat to cuſtome, which is as it were another nature. Vocations and dayly exerciſes, are referred to dyet, for other things beſt husbandmen and laboures, whoſe fleſh is denſe and skin hardened by much labour, than idle and delicate perſons. But of all other, have diligent regard of that indication which is drawne from the ſtrength of the patient; for we muſt preſently, (all elſe being neglected) ſuccour the fainting, or decaying ſtrength; wherefore if it be needfull to cut off a member that is putrified, the operation muſt bee deferred if the ſtrength of the patient be ſo dejected, that hee cannot have it performed without manifeſt danger of his life. Alſo indication may be drawne from the encompaſſing ayre, under which alſo is comprehended that, which is taken from the ſeaſon of the yeere, region, the ſtate of the ayre and ſoyle, and the particular condition of the preſent and lately by-paſt time. Hence it is we reade in *Guido*, that wounds of the head are cured

The Indication which is drawne from the ſtrength of the patient is the chiefeſt of all other.

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d. mannæ, thuris. an.
net. an. ℥ij. or ℞. *re-*
eos, ariſtolochiæ, an.
cum melle roſato, fiat

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es taken forth; na-
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Why wounds of the head at *Paris*, and of the legges at *Avignion* are hard to be cured.

with farre more difficulty at *Paris*, than at *Avignion*; where notwithſtanding on the contrary, the wounds of the legges are cured with more trouble, than at *Paris*; The cauſe is, the ayre is cold and moyſt at *Paris*; which conſtitution ſeeing it is hurtfull to the braine and head, it cannot, but muſt be offenſive to the wounds of theſe parts. But the heate of the ambient ayre at *Avignion*, attenuates and diſſolves the humors, and makes them flow from above downewards. But if any object that experience contradicts this opinion of *Guido*, & ſay, that wounds of the head are more frequently deadly in hot countries; let him underſtand that this muſt not be attributed to the manifeſt & naturall heate of the ayre, but to a certaine maligne & venenate humor, or vapour diſperſed through the ayre, and rayſed out of the Seas; as you may eaſily obſerve in thoſe places of France & Italy which border upon the Mediterranean Sea. An indication may alſo be drawne from the peculiar temper of the wounded parts, for the muſculous parts muſt be dreſſed after one, and the bony parts after another manner. The different ſenſe of the parts, indicates and requires the like variety of remedies; for you ſhall not apply ſo acride medicines to the Nerves and Tendons, as to the ligaments which are deſtitute of ſenſe. The like reaſon alſo, for the dignity and function of the parts needefull for the preſervation of life; for oft times wounds of the braine, or of ſome other of the naturall and vitall parts, for this very reaſon that they are defixed in theſe parts, divert the whole manner of the cure, which is uſually and generally performed in wounds. Neither that without good cauſe, for oft times from the condition of the parts, we may certainely pronounce the whole ſucceſſe of the diſeaſe; for wounds which penetrate into the ventricles of the braine, into the heart, the large veſſells, the cheſt, the nervous part of the midriffe, the Liver, ventricle, ſmall guts, bladder, if ſomewhat large are deadly; as alſo theſe which light upon a joynt in a body repleate with ill humors, as we have formerly noted. Neither muſt you neglect that indication which is drawne from the ſituation of the part, and the commerce it hath with the adjacent parts, or from the figure thereof; ſeeing that *Galen* himſelfe would not have it neglected. But wee muſt conſider in taking theſe forementioned Indications, whether there bee a compoſition, or complication of the diſeaſes; for as there is one and that a ſimple indication, of one & that a ſimple diſeaſe, ſo muſt the indication be various of a compound and complicate diſeaſe. But there is obſerved to be a triple compoſition, or complication of affects beſides nature; for either a diſeaſe is compounded with a diſeaſe, as a wound, or a phlegmon with a fracture of a bone; or a diſeaſe with a cauſe, as an ulcer with a defluxion; or a diſeaſe with a ſymptome, as a wound with paine, or bleeding. It ſometimes comes to paſſe, that theſe three, the diſeaſe, cauſe, and ſymptome, concurre in one caſe or affect. In artificially handling of which, we muſt follow *Galens* counſell, who wiſhes in complicated and compounded affects, that we reſiſt the more urgent; then let us withſtand the cauſe of the diſeaſe, and laſtly that affect, without which the reſt cannot be cured. Which counſell muſt well be obſerved; for in this compoſure of affects, which diſtracts the Empericke; But on the contrary the rationall Phyſition hath a way preſcribed in a few and theſe excellent words, which if hee follow in his order of cure, hee can ſcarſe miſſe to heale the patient. Symptomes truely as they are ſymptomes, yeeld no indication of curing, neither change the order of the cure; for when the diſeaſe is healed, the ſymptome vaniſhes, as that which followes the diſeaſe, as a ſhadow followes the body. But ſymptomes doe often times ſo urge and preſſe, that perverting the whole order of the cure, we are forced to reſiſt them in the firſt place, as thoſe which would otherwiſe encreaſe the diſeaſe. Now all the formerly mentioned indications may be drawne to two heads; the firſt is, to reſtore the part to its native temper; the other is that the blood offend not either in quantity or quality; for when thoſe two are preſent, there is nothing which may hinder the repletion, nor union of wounds or Vlcers.

An indication to be drawne from the quicke and dull ſenſe of the wounded parts.

Gal. lib. 7. Meth. et 2. ad Glauc.

Gal. lib. 7. Meth.

How and when we muſt take indication of curing from a ſymptome.

Chap.

CHAP. IX.

what remaines for the Chirurgion to doe in this kinde of wounds.

THe Chirurgion muſt firſt of all be skilfull and labour to aſſwage paine, hinder defluxions, preſcribe a dyet in theſe ſixe things we call Not naturall, forbidding the uſe of hot and acrid things, as alſo of wine; for ſuch attenuate the humors and make them more apt for defluxion. Therefore at the firſt let his dyet be ſlender, that ſo the courſe of the humors may bee diverted from the affected part; for the ſtomacke being empty and not well filled, drawes from the parts about it, whereby it conſequently followes, that the utmoſt and remoteſt parts are at the length evacuated; which is the cauſe, that ſuch as are wounded, muſt keepe ſo ſpare a dyet for the next dayes following. Venery is very pernitious, for that it inflames the ſpirits and humors farre beyond other motions; whereby it happens that the humors waxing hot, are too plentifully carryed to the wounded and overheated part. The bleeding muſt not bee ſtanched preſently upon the receiving of the wound, for by the more plentifull effluxe thereof the part is freed from danger of inflammation and fulneſſe. Wherefore if the wound bleede not ſufficiently at the firſt, you ſhall the next day open a veine, and take blood according to the ſtrength and plenitude of the patient; for there uſually flowes no great ſtore of blood from wounds of this nature; for that by the greatneſſe of the contuſion and vehemencie of the mooved ayre, the ſpirits are forced in, as alſo I have obſerved in thoſe who have one of their limbes taken away with a Cannon bullet. For in the time when the wound is received, there flowes no great quantity of blood, although there be large veines and arteries torne in ſunder thereby. But on the 4, 5, 6. or ſome more dayes after, the blood flowes in greater abundance, and with more violence, the native heate and ſpirits returning into the part. The belly muſt be ſo qualified, that he may have at the leaſt one ſtoole a day, either by nature, or Art; and if by Art, then rather with a gliſter than purging medicines taken by the mouth, for that the agitation of humors, chiefely in the firſt dayes of the diſeaſe, is to be ſuſpected, leaſt we increaſe the defluxion falling downe upon the wounded part. Yet *Galen* writes that both the evacuations are heere needefull, that is, blood-letting and purging, though the Patient bee neither phethoricke, nor repleate with ill humors. But the care hereof muſt be committed to the judgement of the learned Phyſition. Paine if ioyned with inflammation ſhall be mitigated, by anointing the parts neere unto the wound with ***Vnguent. nutritum***, compoſed with the juyce of Plantaine, Houſleeke, Nightſhade and the like. ***Vnguentum Diacalcitheos*** deſcribed by *Galen* diſſolved with vinegar, oyle of Poppyes and Roſes is of no leſſe efficacy; nor ***unguent. de bolo***, nor divers other things of the ſame faculty, though properly no anodynes, as thoſe which are not hot and moyſt in the firſt degree, but rather cold, but yet not ſo as to have any narcoticke faculty. Now theſe forementioned things aſſwage paine for that they correct the hot diſtemper, and ſtay the acride and chollericke defluxions, whoſe violence is more than cold. After the uſe of repercuſſives, it will be good to apply this following cataplaſme. ℞ ***Micæ panis infuſæ in lacte vaccino*** ℔ j.ß. ***bulliant parum addendo olei violacei, & roſar. an.*** ℥iij. ***vitellos ovorum nu.*** iiij. ***pulver. roſar. rub. flor. chamæm. & meliloti, an.*** ℥ij. ***farin. fabar. & hordei, an.*** ℥j. ***miſce. fiat cataplaſma ſecundum artem.*** Alſo in this caſe you may eaſily make a medicine, of bread crummes boyled in Oxycrate and oyle of Roſes. The cure of Tumors, if any aſſociate the wound, may be found in their proper place. Natures motion, whether to ſuppuration, or any ſuch thing, muſt ſtill be obſerved, and helped by the Phyſition and Chirurgion, as the miniſters or ſervants thereof.

Why ſuch as are wounded muſt keepe a ſlender Diet,

Why we muſt open a veine in ſuch as are wounded by Gunſhot.

Gal. Lib. 4. Meth, cap. 6.

Gal. Lib. 1 de comp. Med, ſecund. gen. c. 6.

An Anodyne and ripening Cataplaſme

CHAP. X.

Of Bullets which remaine in the body, for a long time after the wound is healed up.

Leaden Bullets lye in ſome parts of the body ſome whiles ſeaven, eight or more yeares, ſo that they neither hinder the agglutination of the wound, neither doth any other ſymptome happen thereupon, as I have diverſe times obſerved; untill at length by the ſtrength of nature forcing them, and their proper weightines bearing them downewards, they ſhew themſelves in ſome lower part, by their ſwelling or bunching forth, and ſo muſt be taken forth by the hand of the Chirurgion. For they ſay Lead hath a certaine ſympathy and familiarity with mans body, chiefely the fleſhy parts thereof. Wherefore it neither putrifies its ſelfe, nor cauſeth the fleſh to putrifie; beſides it hath an excellent faculty in cicatrizing old ulcers. But bullets of ſtone, Iron and of any other mettall, are of another nature, for they cannot remaine any long time in the body without hurt; for Iron will grow ruſty, and ſo corrode the neighbouring bodyes, and bring other maligne ſymptomes. Yet a Leaden bullet cannot remaine any long time in nervous, or noble parts without danger.

Why Leaden Bullets lye in the body ſo many yeeres without doing any harme.

CHAP. XI.

How to correct the conſtitution of the ayre, ſo that the noble parts may be ſtrengthened, and the whole body beſides.

But becauſe as we have formerly told you, there are ſome times wherein even ſmall wounds made by Gunſhot prove deadly, not by their owne fault, but the fault of the ayre; therefore alſo the Chirurgion muſt have this care, that he correct the ayre with all diligence, and reduce it to a certaine quality and moderation of ſubſtance, and ſtrengthen the noble parts and whole body beſides, which may be performed, by the following medicines, which are to be taken inwardly and applyed outwardly. In the morning three houres before meate let the Patient take ſome certaine quantity as the Phyſition ſhall thinke fit of the electuary *Diarbodon Abbatis, or Aromaticum roſatum, triaſantalon, biamoſchum, lætificans Galeni,* or ſome ſuch other like. And you ſhall apply ſome ſuch Epitheme as is heere deſcribed to the heart and Liver. ℞ *aquæ roſar.* ℥iiij, *aquæ bugloſſæ, aceti boni, an.* ℥ij. *coriandri præparati* ℥ß. *caryophill. cortic. citri, an* ʒj. *ſant. rub.* ʒß. *coralli utriuſque* ʒß. *camphoræ* ℈j. *croci* ℈ß. *pulver. diarhod. Abbat.* ʒij *theriacæ & Mithridatij an.* ℥ß. *pul. flo. chamæm & melil. an.* ʒiij. *miſce, fiat epithema.* Let it be applyed warme by dipping a ſcarlet cloath therein. You ſhall frequently put odoriferous and refrigerating things to the patients noſe, to ſtrengthen the animall faculty, as, ℞. *aquæ roſar. & aceti boni. an.* ℥iij. *caryophyllorum, nucis moſchat, cinamomi conquaſſatorum, & Theriacæ Galeni, an.* ʒj. Let a linnen ragge dipped herein, be now and then put to the patients noſe; for the ſame purpoſe he ſhall carry a Pomander about him, and often ſmell thereto. As ℞ *roſ. rub. violar. an* ʒiij. *baccarum myrti, juniperi, ſantal. rub. an.* ʒijß. *ſtyracis calamit.* ʒij. *aq. roſarum, quantum ſatis eſt: liquefiat ſimul cum ceræ albæ quod ſufficit, fiat ceratum ad comprehendendos ſupradictos pulvers cum piſtillo calido, & ducatur in pomum.* Or, ℞. *rad. Ireos Florent. majoran. calam. aromat. ladani, benzoini, rad. cyperi, caryophll. an.* ʒij. *Moſchi. gra. 4. fiat pulvis cum gummi tragacanth. quod ſufficit.* Or elſe. ℞. *ladani puri* ℥j. *Benzoini* ℥ß, *ſtyracis calamit.* ʒvj. *ireos Flor.* ℥ß *caryophyll.* ʒiij. *majoran. roſ. rub. calami aromat. an.* ʒß, *in pollinem redigantur omnia, & bulliant cum aqua roſ. quantum ſufficit; colentur, colata liquefiant cum juſta ceræ albæ quantitate, ſtyracis liquidæ,* ℥j, *fiat ad modum cerati, & cum piſtillo fiat pomum, addita moſchi* ʒj. Alſo you may corroborate the animall faculty by application of frontalls, as alſo procure ſleepe, and eaſe the paine of the head; as,

Cordialls to ſtrengthen the noble parts.

A cordiall Epithem.

Pomanders.

Frontalls to cauſe reſt, and ſtrengthen the animall faculty.

as, ℞. *aq. roſ.* ℥ij. *olei roſ. & papav. an.* ℥iß *aceti boni,* ℥j. *trochiſ. de camphora,* ʒß. *fiat frontale.* Linnen ragges dipped herein may be applyed to the temples of the forehead, and often renewed; otherwiſe by their heate, dryneſſe, and hardneſſe, they will cauſe watching in ſteed of ſleepe. Neither muſt you in the meane time binde the head too hard, leſt by intercepting and hindring the pulſation of the temporall Artery, you encreaſe the paine of the head. You ſhall make a fire, in the patients chamber of oderifferous woods, as Iuniper, Bay-tree, the prunings or cuttings of Vines, Roſemary, and Orris rootes. For the ſame purpoſe, you may ſprinkle the floore with ſweete water, if the patient be able to undergoe ſuch coſt. As, ℞. *majoranæ, menthæ, radic. cyperi, calami aromat. ſalviæ, lavendulæ, fænicul. thymi, ſtæchad. flor. chamam. melilot. ſatureiæ, baccarum lauri, & juniperi, an. M.* iij. *pulv. caryophyll. nucis Moſchat. an.* ℥j. *aquæ roſar. & vitæ, an. lib.* ij. *vini albi boni & odorifici.* ℔. x. *bulliant omnia in balneo Mariæ ad uſum dictum.* You may alſo make perfumes to burne in his chamber, as thus, ℞. *carbonis ſalicis* ℥viij. *ladani puri* ℥ij. *thuris maſculi, ligni & baccarum Iuniperi, an.* ℥j. *xyloaloes, benjoini, ſtyracis calamit. an.* ℥ß. *Nucis moſchatæ, ſantal. citrin. an.* ʒiij. *caryophill. ſtyracis liquidæ, an.* ʒij. *zedoariæ calami aromat. an.* ʒj. *gummi tragacanth. aqua roſar. ſoluti, quod ſit ſatis;* Make hereof perfumes in what faſhion you pleaſe. For the rottenneſſe and corruption of bones we will treate thereof hereafter in its due place.

A ſweete water.

Perfumes to burne.

CHAP. XII.

Certaine memorable Hiſtories.

HEre I thinke good for the benefit of young practitioners, to illuſtrate by examples the formerly preſcribed Methode of curing wounds made by Gunſhot. The famous and moſt valiant Count of Mansfelt, Governour of the Dutchy of *Luxembourge*, Knight of the order of Burgundy, comming to the ayde of the French King, was at the battell of Moncontour, where in the conflict, he received ſo great a wound at the joynt of the left arme with a Piſtoll bullet, that the bones were ſhivered and broken in ſo many peeces, as if they had bin layd upon an Anvill and ſtruck with an hammer: hence proceeded many maligne ſymptomes, as cruel & tormenting paine, inflammation, a feaver, an œdematous and flatulent tumor of the whole arme even to the fingers end, and a certaine inclination to a Gangræne: which to reſiſt, *Nicolas Lambert*, & *Richard Hubert* the Kings Chirurgions, had made many and deepe ſcarifications. But when I came to viſite and dreſſe him, by the Kings appointment, and had obſerved the great ſtinch, and putrifaction, I wiſhed that they would uſe lotions of *Ægyptiacum* made ſomewhat ſtronger than ordinary, & diſſolved in venegar & *aqua vitæ*, and do other things more largely ſpoken of in the chapter of a Gangreene. For the patient had alſo a *Diarrhæa* or fluxe, whereby he evacuated the purulent, and ſtinking filth which flowed from his wound. Which how it might come to paſſe wee will ſhow at large when we come to treate of the ſuppreſſion of the Vrine. For this ſeemed very abſurd to many, becauſe that if this purulent humor flowed out of the arme into the belly, it muſt needs flow backe into the veines, bee mixed with the blood, and by its pernitious and contagious paſſage through the heart and liver, cauſe exceeding ill ſymptomes, and laſtly death. Indeed he often ſwounded by the aſcent of the filthy vapours raiſed from the ulcers to the noble parts; which to reſiſt, I wiſhed him to take a ſpoonefull of *aqua vitæ* with ſome Treacle diſſolved therein. I endeavoured to repreſſe the œdematous and flatulent Tumor poſſeſſing all the arme with ſtoups dipped in oxycrate, to which was put a little ſalt and *aqua vitæ*, theſe ſtoups I ſtayed & held to the part with double clothes, ſowed as ſtrait as I could. Such a compreſſion held the broken bones in their places, preſſed their *Sanies* from the ulcers, and forced backe the humors flowing to the part into the center of the body. If at any time I omitted this compreſſion, the tumor was ſo encreaſed, that I was in a great deale of feare, leaſt the native heate of the part ſhould bee ſuffocated. Neither could I otherwiſe binde up the arme by reaſon of the exceſſive paine which moleſted the patient upon the leaſt ſtirring of the Arme. There were alſo many Abſceſſes

The maligne ſymptomes which uſually happens upon wounds made by Gunſhot.

Matter may flow from the wounded limbes into the belly.

about his elbow and over all his arme beſides. For the letting forth of whoſe matter I was forced, to make new inciſions; which he endured very ſtoutly. At length I cured him with uſing a vulnerary potion, and by cleanſing the ulcers, and correcting the putrifaction with *Ægyptiacum* diſſolved in wine or honey of roſes, and ſo poured into the ulcers, and repreſſing the growth of proud fleſh, with the pouder of burnt Alome, drying it after the deterſion with liniments. Now this I can truely affirme and profeſſe, that during the time of the cure, I tooke out above threeſcore ſplinters of bones, and thoſe neceſſarily, amongſt which there was one of the length of ones finger; yet by Gods aſſiſtance at length he became ſound in all things, but that hee could not put forth, or draw in his arme.

A breefe recitall of the manner of the cure.

Not long after by the Kings command I went to ſee *Charles Philip* of Croy, Lord of Auret, the Duke of Aſchos brother, not farre from Mounts a City of Henalt. He kept his bed ſeaven monthes by reaſon of a wound made by a Bullet the ſpace of three fingers above his knee. When I came to him, hee was afflicted with theſe ſymptomes, intollerable paine, a continuall feaver, cold ſweats, watchings, excoriation of the hippes by reaſon of his long lying upon them, his appetite dejected with much thirſt. He oft ſunke downe as if he had the falling ſickneſſe, had a deſire to vomit, and a continuall trembing or ſhaking ſo that he could not put one hand to his mouth without the aſſiſtance of the other: he ſwounded frequently by reaſon of the vapours aſcending to the noble parts. For the thighbone was broken long wayes and ſidewayes with many ſplinters of bones, whereof ſome were plucked out and others remained ſticking faſt in. He beſides alſo had an ulcer in his groine which reached to the midſt of his thigh, and many other ſinuous ulcers about his knee. All the muſcles of his thigh and legge were ſwolne with a flegmaticke, cold and flatulent humor, ſo that almoſt all the native heate of thoſe parts ſeemed extinct. All which things being conſidered, I had ſcarſe any hope to recover him, ſo that I repented my comming thither. Yet at length putting ſome confidence in his ſtrength, and prime of youth, I began to have better hopes. Therefore with his good liking, firſt of all I make two inciſions, ſo to let forth the matter, which lying about the bone did humect the ſubſtance of the muſcles. This had happy ſucceſſe, and drew out a great quantity of matter; then I with a ſyring injected much *Ægyptiacum* diſſolved in wine, and a little *aqua vitæ* into theſe inciſions, ſo to reſtraine and amend the putrifaction, repreſſe the ſpongie, looſe and ſoft fleſh, reſolve the œdematous and flatulent tumor, aſſwage the paine, and ſtirre up and ſtrengthen the native heate almoſt oppreſt by the aboundance of excrementitious humors, ſo that it could ſcarſely aſſimulate any nouriſhment and adjoyne it to the parts. Then I fomented the affected part with Sage, Roſe-mary, Time, Lavander, Chamomile and Melilot flowres and red-roſe leaves boyled in white wine, and lye made of Oake-aſhes, adding thereto as much ſalt and vineger as I judged requiſite. This fomentation did attenuate and draw forth the morbificke humour. Now we uſed them long and often, ſo to waſte the humour more by drying up and breathing thorow the paſſages of the ſkinne, more thereof than fell into the part. For this ſame purpoſe, we ordained that he ſhould uſe frictions with hot linnen clothes, and that theſe ſhould be made from above downwards, from below upwards, and ſo on every ſide, and ſomewhat long withall: For a ſhort friction drawes more humour into the part than it can reſolve: I wiſhed that each other day they ſhould lay bricks heated hot in the fire about his leg, thigh, & ſoale of his foot; but they were to be ſomewhat quenched, & ſprinkeld with wine and vineger, with a ſmall quantity of *aqua vitæ*. Much watriſh moiſture by this moiſt heat, did ſweat out of theſe parts, the tumour was leſſened, and the native heat by little and little reſtored. Then ſhoupes dipped in lye made of Oake-aſhes, wherein Sage, Roſmarie, Lavender, ſalt, and cloaves, were boyled, ſome *aqua vitæ* added, were applyed thereto; but the rowlers were ſo gently, and artificially wrapped about, that he did eaſily endure them without any paine, and that with ſuch happy ſucceſſe, that if they were omitted but for one day, the tumor became very great. But thicke linnen boulſters were layd upon the lower cavities of the ulcers; that ſo the *ſanies* or filth might be more eaſily preſſed forth. But I had alwayes a ſpeciall care that the orifices of the ulcers ſhould be kept open with hollow Tents or pipes put therein;

Horride ſymptomes occaſioned by a wound made by Gun-ſhot.

Inciſions wherefore made.

Wherefore I uſed fomentations.

Mixed or round frictions, as they terme them.

A medicated Lye.

A diſcuſſing Cataplaſme.

and ſometimes this following cataplaſme was applyed to reſolve the tumor. ℞. *Far. hord. fabar. & orobi, an* ℥vj. *mellis com. & tereb. an.* ℥ij. *flo. chamam. melil. & roſ. rub. an.* ℥ß. *pulv. rad. Ireos, Flor. cyper. Maſt. an.* ʒiij. *oxymel. ſimp. quantum ſufficit; fiat cataplaſma ad formam pultis ſatis liquida.* And *Emplaſtrum de Vigo* without mercury was applyed thereto, whereby the paine was much aſſwaged, and the tumor leſſened; yet were they not applyed before the parts were throughly heated by the fomentation, frictions, and evaporations; for otherwayes this Emplaſter could never have beene activated, by reaſon of the exceſſive coldneſſe of the affected parts. Neither did we omit catagmaticke powders, fit for the taking, and drawing forth of broken bones. He uſed a vulnerary potion for 15, dayes. Alſo beſides the particular frictions of the affected parts, I appointed other generall frictions of the whole body, which was become very leane; for by theſe, blood together with the ſpirit was drawne to the parts, and the acride, and fuliginous vapours were breathed forth.

To conclude, his feaver and paines being aſſwaged, his appetite reſtored, by feeding plentifully upon good meates according to his ſtrength, he in a ſhort time became more luſty; and laſtly by the ſingular mercy of God, recovered his health perfectly, but that he could not very well bend his knee. I thought good to recite theſe things, not to glory or bragge of the happy ſucceſſe of thoſe patients, which have recovered by my meanes, and the favour of God; but that thus I may more fully and perfectly by familiar examples inſtruct young practitioners in the operations of Chirurgery.

CHAP. XIII.

An Apologie concerning Wounds made by Gunſhot.

The occaſion of writing this Apologie.

THere lately came to my hands a booke written by a certaine Phyſition, whereby he endeavours to diſproove and overthrow, that which I have hitherto writ, of the cure of wounds made by Gunſhot. Aſſuredly if there were no other harme, but the loſſe of my credit enſuing thereon, I would willingly hold my peace, and ſtoppe his mouth by modeſt ſilence. But ſeeing the ſafety of ſo many men, lyes upon the judgement of this point, I have thought good to withſtand this error, leaſt it, to the great deſtruction of mankind, ſpread and diffuſe it ſelfe any further. The uſe (ſaith he) of ſuppurative medicines, have killed many who have beene but lightly wounded with Gunſhot, but acride medicines, as *Ægyptiacum* have killed more. Neither is the counſell of *Hippocrates* to be obſerved in curing this ſort of wounds, who bids that every contuſed wound be brought to ſuppuration. For ſeeing this is a new kinde of wound, it requires new, and not anciently uſed medicines. Now the temper of the ayre changed from the naturall conſtitution ought not to indicate change of medicines; but much leſſe muſt thunder and lightening bee compared to the ſhooting of Great Ordinance. Theſe are the chiefe heads of this his booke, which becauſe they diſſent from the truth, & theſe things I have formerly delivered, I have thought good heere to confute.

The chiefe heads of our adverſaries Treatiſe.

All wounds made by Gunſhot are contuſed.

First, ſeeing Leaden bullets which are uſually ſhot out of Guns are round, obtuſe and weighty, they cannot wound the body without contuſion and attrition; Now no contuſion can be cured without ſuppuration, not onely according to the opinion of *Hippocrates*, but alſo of *Galen* and all others who have written of Phyſicke. Neither muſt we invent new remedies, for theſe new kindes of wounds; for the lawes of the ſacred and divine Art of Phyſicke are nor obnoxious to change, nor ſubject to the humor of men or times, as the decrees of Kings and Emperours are. For theſe are ſtabliſhed with immutable neceſſitie, which conſtancie neither conſuming time, nor age, nor tyranny can pervert. Wherefore neither theſe who with great prayſe are Phyſitions to Kings and Princes, I meane *Ioubert* and *Botallus*, think it lawfull for them to depart from the rule of *Hippocrates*. And this they not only doe and follow in curing and doing the workes of Art, but much and highly commend, confirme and propound to be diligently obſerved by all, in their bookes which they have publiſhed concerning the cure of theſe kinds of wounds. And yet theſe Phyſitions are ſuch, as daily converſant in Armies and Kings houſes have healed and daily cure as many wounded by Gunſhot as this Phyſition our Antagoniſt hath ſeene in all his life. Neither onely doe theſe whom I have named thus cure theſe wounds, but almoſt all that dreſſe ſuch kind of wounds doe the like, ſo that if there bee nothing which may hinder, or indicate to the contrarie they preſently apply ſuppuratives. And I wonder that hee hath not obſerved how his neighbour ***Doublet*** the Empericke cures deſperate wounds of this nature, with no other than a ſuppurative medicine, compoſed of Lard, the yolke of an Egge, Turpentine and a little Saffron.

A ſuppurative medicine of tryed efficacy.

In the yeare 1538. There was at ***Turin*** whileſt I was Chirurgion there to the Marſhall of ***Montjan*** the Kings Leifetenant Generall in ***Piemont***, a certaine Chirurgion wondrous famous for curing theſe wounds, and yet hee uſed nothing elſe but the oyle of Whelpes, (the deſcription whereof I at length obtained of him with much intreaty and expence) and hee uſed it not ſcalding hot, as ſome have imagined, but powred it ſcarſe warme into their wounds, and ſo did mitigate their paine, and happily bring them to ſuppuration. Which afterwards almoſt all Chirurgions, after they had got the deſcription heereof, when I firſt publiſhed this Worke, have uſed and daily doe uſe with happy ſucceſſe.

The force of *Ægyptiacum* againſt putrefaction.

But in contemning and condemning *Ægyptiacum*, I thinke hee hath no partaker; ſeeing there as yet hath beene found no medicine more ſpeedy and powerfull to hinder putrifaction, if beginning; or correct it if preſent. Now theſe wounds often degenerate into virulent, eating, ſpreading, and maligne ulcers, which caſt forth a ſtincking and carion-like filth, whence the part Gangrenates, unleſſe you withſtand them with *Ægyptiacum* and other acrid medicines, being greatly approved by the formerly named Phyſitions and all Chirurgions. But (ſaith hee) this unguent is poyſonous, and therefore hath beene the death of many who have beene wounded by Gunſhot. Verily if any diligently enquire into the compoſition of this oyntment, and conſider the nature of all and every the ingredients thereof, hee ſhall underſtand that this kind of Vnguent is ſo farre from poyſon, that on the contrary it directly oppoſes and reſiſts all poyſon and putrifaction which may happen to a fleſhy part, through occaſion of any wound.

The force of the ayre in breeding and augmenting diſeaſes.

It is moſt falſe and diſſonant from the doctrine of *Hippocrates* to affirme, that the ſeaſons of the yeare ſwerving from the Law of nature, and the aire, not truly the ſimple and elementary, but that which is defiled and polluted by the various mixture of putrid and peſtilent vapours, eyther raiſed from the earth, or ſent from above, make not wounds more maligne and hard to cure at ſome times than they are at otherſome.

For the ayre eyther very hot, or cold, drawne into the body by inſpiration or tranſpiration, generates a condition in us like its qualities. Therefore why may it not, when defiled with the putredinous vapours of bodies lying unburied after great battailes, and ſhipwracks of great Armadoes, infect with the like qualitie our bodies and wounds?

A Hiſtory.

In the yeare 1562. when the civill warres concerning Religion firſt begun in France, at ***Pene*** a Caſtle lying upon the River ***Lot***, many ſlaine bodies were caſt into a Well, ſome hundred Cubits deepe, ſo ſtinking and peſtilent a vapour aroſe from hence ſome two moneteh after, that many thouſand of people dyed all over the Provence of ***Agenois***, as if the Plague had beene amongſt them, the pernitious contagion being ſpred twenty miles in compaſſe; which none ought to thinke ſtrange, eſpecially ſeeing the putride exhalations by the force of the windes may be driven and carried into divers and moſt remote regions, diſperſed like the ſeeds of the Peſtilence; whence proceeds a deadly corruption of the ſpirits, humors and wounds, not to be attributed to the proper malignitie, or perverſe cure of wounds, but to be the fault of the aire.

Therefore ***Francis Daleſchampe*** in his French Chirurgery, in reckoning up theſe things which hinder the healing of Vlcers, hath not omitted

Hip. Aph. 1. ſect. 3.

that common cauſe which proceeds from the ayre defiled or tainted with the ſeedes of the peſtilence. For he had learnt from his Maſter ***Hippocrates*** that the mutations of times chiefely bring diſeaſes, and he had read in ***Guido***, that this was the chiefe occaſion, that wounds of the head at *Paris*, and of the legges at *Avignion*, were more difficultly healed. Laſtly even Barbers and ſuch as have leaſt skill in Chirurgery know, that wounds eaſily turne into a Gangreene in hot and moyſt conſtitutions of the ayre.

In our ſecond diſcourſe.

The power of the ſtarres upon the Aire and our bodies.

Apho. 20. ſect. 5.

Wherefore when the winde is ſoutherly, the Butchers will kill no more fleſh than to ſerve them for one day. I have formerly declared the malignity of the wounds occaſioned by the ayre in the ſeige of *Roüen*, which ſpared none, no not the Princes of the blood, who had all things which were requiſite for their health. Which cauſed me, made at length more skilfull by experience, to uſe *Vnguentum Ægyptiacum* and medicines of the like faculty in ſteed of ſuppuratives, to wounds during all that ſeaſon, that ſo I might withſtand the putrefaction and Gangreene which ſo commonly aſſayled them. But if the various motion of the ſtarres, can by their influxe ſend a Plague into the aire, why then may it not by depravation of their qualityes infect, and as by poyſoning corrupt both wounds and wounded bodies obnoxious to their changes and that of the ayre? Wee learnt long ſince by experience, that all paines but principally of wounds, grow worſe in a rainy and moiſt ſeaſon, ſpecially becauſe in that ſoutherly conſtitution the aire replete with thicke and foggy vapours, cauſes the humors to abound in the body, which forthwith eaſily fall upon the affected parts, and cauſe encreaſe of paine. But (ſaith our Adverſary) in the battell at ***Dreux*** and at S. ***Dennis*** which were fought in winter, there dyed a great number of men who were wounded by Gunſhot: This I confeſſe is true; but yet I deny, that it was occaſioned by applying ſuppuratives, or corroſives, but rather by the vehemencie and largeneſſe of their wounds, and the ſpoile the Bullet made in their members, but above all by reaſon of the cold. For cold is moſt hurtfull to wounds and ulcers (as ***Hippocrates*** teſtifies) it hardens the skinne and cauſes a Gangreene. If this my Gentleman had beene with mee in the ſeige of ***Metz***, he might have ſeene the Legges of many ſouldiers to have rotted, and preſently taken with a Gangreene to have fallne away, by the onely extremitie of cold; If he will not beleeve me, let him make tryall himſelfe; and goe in winter to the Chappell at Mount ***Senis*** one of the Alpine hills, where the bodies of ſuch as were frozen to death in paſſing that way are buried, and hee ſhall learne and feele how true I ſpeake. In the meane time I thinke it fit to confute the laſt point of his reprehenſion.

The ſimilitude betweene Thunder and great Ordinanee, maintained.

He cavills for that I compared Thunder and Lightning with the diſcharging peices of Ordinance. Frſt he cannot denie but that they are alike in effects. For it is certaine that the flame ariſing from Gunpouder ſet on fire, reſembles Lightning; in this alſo that you may ſee it before you heare the cracke or reporr. I judge for that the eye almoſt in a moment perceives its object; but the eare cannot but in ſome certaine ſpace of time, and by diſtinct gradations. But the rumbling noiſe is like in both, and certainly the report of great Ordinance may bee heard ſometimes at forty miles diſtance, whilſt they make any great battry in the beſeiging of Citties.

Beſides alſo, Iron Bullets caſt forth with incredible celerity by the fiered Gunpouder, throw downe all things with a horrid force, and that more ſpeedily and violently by how much they reſiſt the more powerfully by their hardneſſe. They report that Lightning melts the money not hurting the purſe; Now many by the onely violence of the aire agitated and vehemently mooved by ſhooting a peice of Ordinance, as touched with Lightning, have dyed in a moment, their bones beeing ſhivered and broken, no ſigne of hurt appearing in the skinne.

The ſmell of Gunpouder when it is fiered, is hurtfull, firy and ſulphurous, juſt like that which exhales or comes from bodies killed with Lightning. For men doe not onely ſhunne this ſmell, but alſo wilde Beaſts leave their Dennes if touched with Lightnings. Now the cruelty of great Ordinance makes no leſſe ſpoyle amongſt buildings, nor ſlaughter amongſt men and beaſts, than Lightnings doe, as wee have formerly ſhowne by examples, not onely horrid to ſee, but even to heare reported, as of Mines, the Arcenall of *Paris*, the Cittie of *Malignes*. Theſe may ſeeme ſufficient to reach, that Thunder and Lightning have a great ſimilitude with the ſhooting of great Ordinance, which notwithſtanding I would not have alike in all things. For they neither agree in ſubſtance, nor matter, but onely in the manner of violent breaking aſunder the objects.

Our adverſaries method, and manner of cure, reproved.

Now let us ſee and examine what manner of cure of wounds made by Gunſhot our adverſarie ſubſtitutes for ours. For hee would have ſupparatives uſed and applyed, yet ſuch as ſhould not be hot and moiſt in qualitie, or of an Emplaſticke conſiſtence, but hot and dry things. For (ſaith hee) here is not the ſame reaſon as in Abſceſſes, where the Phyſition intends nothing but ſuppuration. But heere becauſe a contuſion is preſent with the wound, this requires to bee ripened with ſuppuratives, but the wound to be dryed.

Gal. lib. 9. ſimpl. 10. Method.

Now to anſwer this objection, I will referre him to *Galen*, who will teach him the nature of ſuppuratives; from whom alſo hee may learne that great regard is to be had of the cauſe and more urgent order in the cure of compound diſeaſes; then would I willingly learne of him, whether he can heale a wound made by Gunſhot, not firſt bringing that which is contuſed to perfect maturitie. If hee affirme hee can, I will be judged by whatſoever Practitioners hee will, to judge how obſcure theſe things are. Whereby you may the better underſtand there is nothing more commodious than our *Baſilicon* and oyle of Whelpes to ripen wounds made by Gunſhot, if ſo bee that putrifaction, corruption, a Gangreen or ſome other thing doe not hinder. Then would hee have *Oxycrate* poured into theſe wounds to ſtay their bleeding, which if it cannot ſo bee ſtayed, hee would have a medicine applyed conſiſting of the white of an Egge, Bole Armenicke, oile of Roſes and ſalt. But I leave it to other mens judgement, whether theſe medicines have power to ſtay bleeding if put into the wound; certainly they will make it bleede the more. For Vinegar ſeeing it is of a tenuious ſubſtance and biting, it is no doubt but that it will cauſe paine, defluxion and inflammation.

Vinegar put into a wound doth not ſtay but cauſes bleeding.

A Hiſtory.

To which purpoſe I remember I put to ſtanch bleeding, for want of another remedie, a medicine wherein was ſome Vinegar, into a wound received by a Moore, an attendant of the Earle of *Roiſſy*, hurt with a Lance, run through his arme before *Bologne* by an Engliſh horſeman. But he comes againe to mee a little after, complaining and crying out that all his arme burnt like fire; wherefore I was glad to dreſſe him againe, and put another medicine into his wound, and layd an aſtringent medicine upon the wound, but poured it not therein.

And then above all other remedies hee extolls his Balſame compoſed of Oyle of Waxe, and Myrrhe beaten together with the white of an Egge; which hee ſaith is equall in operation to the naturall Balſame of *Peru*. For hee affirmes that this hath a facultie to conſume the excrementitious humidity of wounds, and ſo ſtrengthens the parts that no ſymptome afterwards troubles them. Yet hee ſaith, this doth not ſo well heale and agglutinate theſe wounds, as it doth others which are cut. Verily it is ridiculous to thinke that contuſed wounds can bee healed after the ſame manner as ſimple wounds may, which onely require the uniting of the looſed continuitie.

Balmes are fit to heale ſimple but not contuſed wounds.

Therefore neither can theſe Balſames be fit remedies to heale wounds made by Gunſhot, ſeeing by reaſon of their dryneſſe they hinder ſuppuration, which unleſſe it be procured the patient cannot be healed. Wherefore ſuch things ought not to be put into wounds of this nature, before they be ripened, waſhed and clenſed from their filth. Yet can I ſcarſe conceive, where we ſhall be able to finde out ſo many Chymiſts which may furniſh us with theſe things ſufficiently to dreſſe ſo many wounded ſouldiers as uſually are in an Army, or whence the ſouldiers ſhall have ſufficient meanes to beare the charge thereof. Alſo that which he ſaith is abſurd, that theſe Balſames muſt bee put into the wounds without Tents; and preſently forgetting himſelfe, hee ſaith, It will not bee amiſſe, if there bee a little and ſlender Tent put into the wound, which may onely ſerve to hinder the agglu-

Egyptiacum howſoever made is a clenſer not a ſuppurative.

tination thereof. But how can theſe Balſames come to the bottomes of wounds without Tents, when as it is their chiefe propertie to carry medicines even to the innermoſt parts of the wounds, and alwayes keepe open a free paſſage for the evacuation of the quitture? But it is note worthy, that after hee hath rejected *unguentum Ægyptiacum*, hee neverthleſſe bids to apply it, from the beginning untill the contuſion come to perfect maturation, diſſolving it in a decoction of the tops of wormewood, S. *Iohn wurt*, the leſſer Centory and Plantaine, and ſo injecting it into the wound. Beſides alſo a little after hee gives another way of uſing it, which is, to boyle a quantity of Hony of Roſes in plantaine water, carefully ſciming it, untill it bee boiled to the conſiſtence of Hony, and then to adde as much *Ægyptiacum* thereto, and ſo to make an oyntment moſt fit to bring theſe wounds to ſuppuration. But I leave it for any skilfull in Chirurgery to judge, whether ſuch medicines can bee ſuppuratives, or whether they bee not rather deterſives. Laſt of all hee writes, that theſe wounds muſt bee dreſt but every fourth day. And if there bee a fracture of the bone joyned with the wound, then to moove nothing after the firſt dreſſing untill the eighth day after; then preſently in another place hee ſaith, it will bee good, and expedient, to drop ten or twelve droppes of the formerly deſcribed Balſame every day into the wound. Verily ſuch doctrine which neyther agrees with its ſelfe nor the truth, cannot but much puſle a Novice and young Practitioner in Chirurgery, who is not yet verſed in the Art, or the operations thereof.

Chap. XIIII.

Another Apologie, againſt thoſe who have laboured with new reaſons to proove, that wounds made by Gunſhot are poyſoned.

The occaſion of this Apologie.

SOme few monthes agone, I viſited a patient together with ſome learned Phyſitions and skillfull Chirurgions. Now they, as it oft times happens, in way of diſcourſe, begun to argue of the condition and quality of wounds made by Gunſhot, and endeavoured to proove that they might be poyſoned, by five reaſons. Not truly through the occaſion of the Gunpouder, for they all confeſſed that it was free from poyſon, whether you have regard to its eſſence, or to its compoſition; but by the Bullet, into which the poyſon may bee transfuſed and incorporated. The firſt reaſon is, that Lead ſeeing it is of a rare and ſpongious nature, which the eaſineſſe of melting and ſoftneſſe argues, is very fit to drinke and ſoake in what liquors ſo ever you pleaſe. But me thinkes this concluſion is very weake; for in all mixtures made by Art, ſuch as this is whereof wee ſpeake, there are two things to be conſidered; that is to ſay, the matter of the things which enter into the mixture, and the forme: for the matter, ſuch bodies muſt be eyther liquid, or ſoft or friable; and laſtly ſuch as may be broken and divided into ſmall particles, that ſo they may eaſily in all parts concurre and bee conjoyned and united. But for their forme, there ought to be a certaine affinitie, conſent and ſimpathy. You may perceive this by water and oyle; for each of them though of a liquid ſubſtance, and ſuch as may eaſily bee mixed with divers other things, yet cannot they bee mixed the one with the other by reaſon of their antipathy of formes. For thus gold and ſilver are ſo agreeing with Lead, that as oft as they are molten, Lead is mixed with them. But Braſſe ſhuns Lead as much as gold and ſilver fly Tinne and white Lead. If therefore Braſſe and Lead being melted cannot bee mixed together, though conteined under the ſame *Genus*, and common nature of Mettalls; how then can it be commixt with another thing diſtinct in the whole kinde, much more in *ſpecies*, and forme, to wit, poyſon? Their ſecond reaſon is this; Iron, ſay they, which is more denſe, ſolid, and leſſe porous, may receive ſome venenate ſubſtance and quality, as the Arrowes of the Ancients which were dipped in poyſon, teſtifie; therefore muſt Lead

The reaſons of our adverſaries that the Bullets may be poyſoned, ſet downe and confuted.

much more be capable thereof. I anſwer, that the ſurface of Iron may be poyſoned, but not the inner part or ſubſtance by mixture therewith. But heere the queſtion is of union, but not of annointing or inunction.

The third reaſon is thus framed; Though (ſay they) Lead caſts off and purges it ſelfe from the droſſe and unpure parts, yet that is no argument, that it will not commix, or ſoake its ſelfe in ſome ſtrange liquor or body; for thus Steele, being the moſt ſolid Iron, receives the temper which hardens it by the artificiall pouring upon it or quenching it in liquors contrary thereto in their whole kind. I anſwer, that Steele admits into it by that quenching and tempering, none of the juices or liquors wherewith it is watred or quenched. For if that were neceſſary, it might be better and more eaſily performed, when the mettall is firſt caſt, than when it is beaten into plates, or barres; which anſwer ſhall ſerve to confute their fourth reaſon; wherein they ſay, that bullets may be made ſo poyſonous by the commixture of the juices of Muncks-hood, Oleander, Crowe-foote, and other ſuch like things which in their whole ſubſtance are contrary to ours, that the wound which is made with them cannot but be poyſoned.

But I on the contrary affirme, that mixture is onely of theſe things, which may not onely be put, but alſo ſticke thereto, and be mutually united; but how can water, or any other liquid juice ſo much as onely ſticke to Lead, as that which is a ſolid and firme body, it is ſo farre from being united therewith? You may give more certaine judgement hereof by experience, than by reaſon; wherefore let melted Lead be put into the foreſaid juices or the like; then when the lead is cold, weigh each of them ſeverally, and you ſhall finde, that both of them reteine the ſame weight they formerly had. Which is a moſt certaine argument that neither the Lead hath mixed or united it ſelfe with the juices, nor the juices loſt any part of their ſubſtance.

Their fifth reaſon is thus; A Bullet ſhot out of a Gun againſt ſome hard ſtone, growes not ſo hot, but that you may preſently without any harme take it up in your hand. Therefore it is falſe, that the poyſon commixt and united with the Bullet can bee diſſipated by the fire and flaſh of Gunpouder. The anſwer to this objection is eaſily. For when wee ſay, that although the Bullet may bee infected by poyſon perfectly commixt with the Lead, yet all the force of the poyſon would bee diſſipated by the fire; wee would have you thus to underſtand us, that we doe not meane this of that fire which is made by the pouder at the diſcharging of the Peice, but of that by force whereof the molten head is mixed and conjoyned with the venenate juice, ſo to make one of many. For this fire exerciſing its force upon the venenate juices hindred by the intercourſe of no *Medium*, and that for ſome ſpace of time, and not for an inſtant, it may, if not conſume, yet much weaken their ſtrength.

If there be any, who will not bee ſatisfied by theſe reaſons, let him conſult, and reade *Matthiolus*. There are (ſaith hee) ſome of theſe latter times wholly ignorant of things, who (if wee may ſay the truth) have beene ſo madly fooliſh, that they ſaid it was fit and requiſite to put Treacle and Mithidate and ſuch like Antidotes amongſt Gold and Silver that was melted to make Cuppes, that ſo receiving the faculties of the Antidote they might reſiſt poyſon. But how abſurd and ridiculous their opinion is, let them judge (for it needs no clearer reproofe) who have but a little knowledge in naturall things, but chiefely in Mettalls.

In præfat. l. 6. Dioſcor.

Theſe are my reaſons, theſe the authorities of men excelling in learning and judgement, that confirme me in my ancient and former opinion, that wounds made by Gunſhot doe not partake of any venenate qualitie.

CHAP. XV.

How wounds made by Arrowes differ from ſuch as are made by Gunſhot.

Wounds made with Arrowes and ſuch like things, are often without contuſion. But are ofttimes poyſoned.

WOunds made by Arrowes and Bolts ſhot out of Croſſe-bowes and ſuch like things, differ chiefly in two things, from theſe which are made by Gunſhot. The firſt is, for that they are oft times without contuſion, which the other never are. The other is, for that they oft times are poyſoned. In both theſe reſpects, their cure is different from the other. But the cure of theſe wounds made by Arrowes is different in it ſelfe, by reaſon of the variety and divers ſorts of Darts or Arrowes.

CHAP. XVI.

Of the diverſities of Arrowes and Darts.

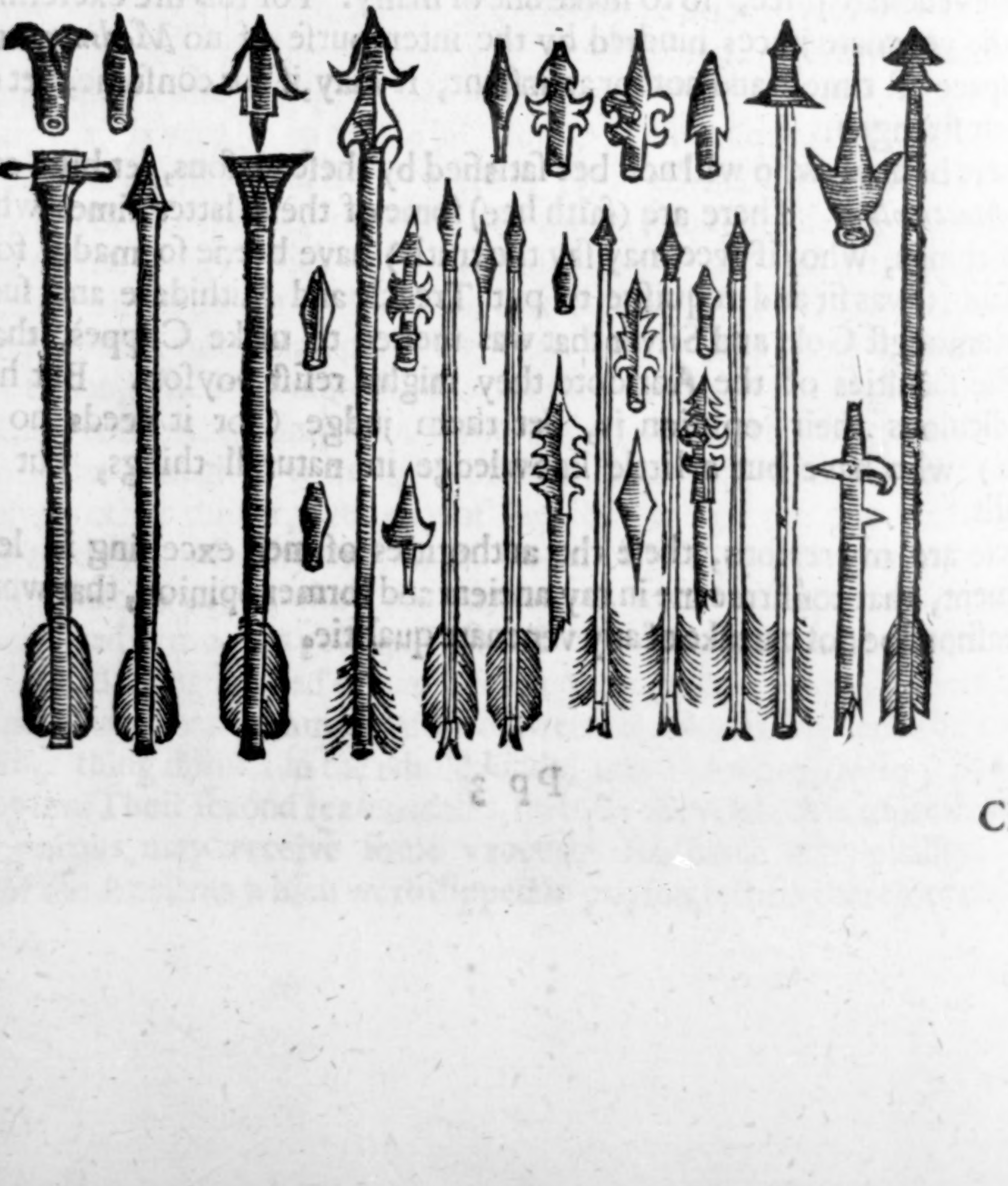
The differences of Arrowes. In matter. In ſigne.

ARrowes and Darts are different amongſt themſelves both in matter and in forme or figure, in number, making, facultie or ſtrength; In matter, for that ſome of them are of wood, ſome of Reeds, ſome are blunt headed, others have piles or heads of Iron, Braſſe, Lead, Tinne, Horne, Glaſſe, Bone. In figure, for that ſome are round, others cornered, ſome are ſharpe pointed, ſome barbed, with the barbs ſtanding either to the point, or ſhafts, or elſe acroſſe, or both wayes; but ſome are broad aad cut like a Chiſſell. For their bigneſſe, ſome are three foote long, ſome leſſe. For their number, they differ in that, becauſe ſome have one head, others more. But they varie in making, for that ſome of them have the ſhaft put into the head, others the head into the ſhaft; ſome have their heads nailed to the ſhaft, others not, but have their heads ſo looſely ſet on, that by gentle plucking the ſhaft, they leave their heads behind them, whence dangerous wounds proceede. But they differ in force, for that ſome hurt by their Iron onely, others beſides that, by poyſon, wherewith they are infected. You may ſee the other various ſhapes here repreſented to you in the following Figure.

In bignes. In number, In making.

In force.

The Figures of divers ſorts of Arrowes.



Chap. XVII.

Of the difference of the wounded parts.

THe Wounded parts are eyther fleſhy or bony; ſome are neare the joynts, others ſeated upon the very joynts; ſome are principall, others ſerve them; ſome are externall, others internall. Now in wounds where deadly ſignes appeare, its fit you give an abſolute judgement to that effect; leaſt you make the Art to be ſcandalled by the ignorant. But it is an inhumane part, and much digreſſing from Art, to leave the Iron in the wound; it is ſometimes difficult to take it out, yet a charitable and artificiall worke. For it is much better to try a doubtfull remedy, than none at all.

You muſt not leave the weapon in the wound.

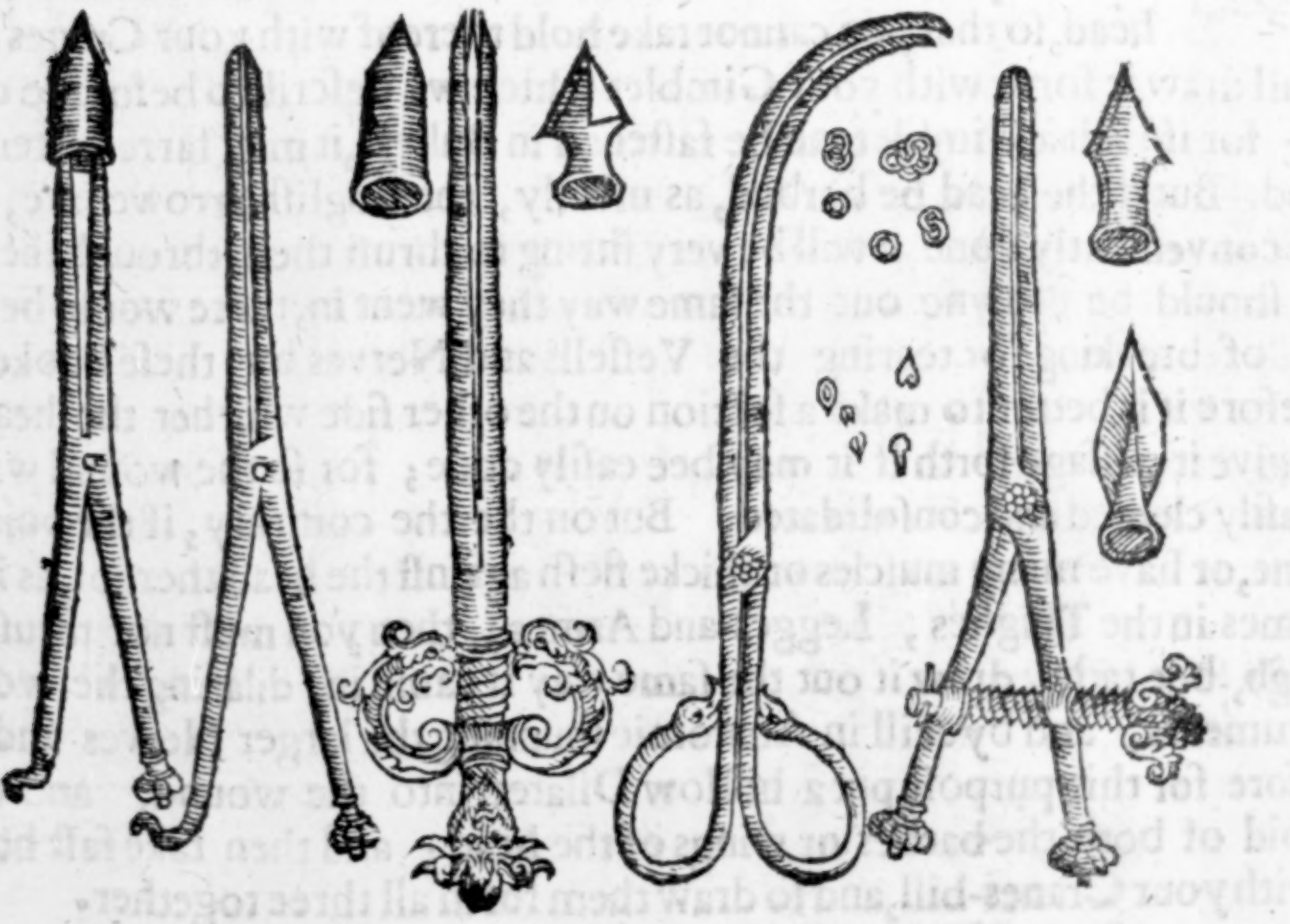
Chap. XVIII.

Of drawing forth Arrowes.

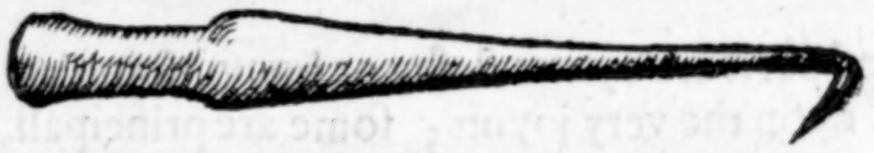
The manner of drawing forth Arrowes and ſuch weapons.

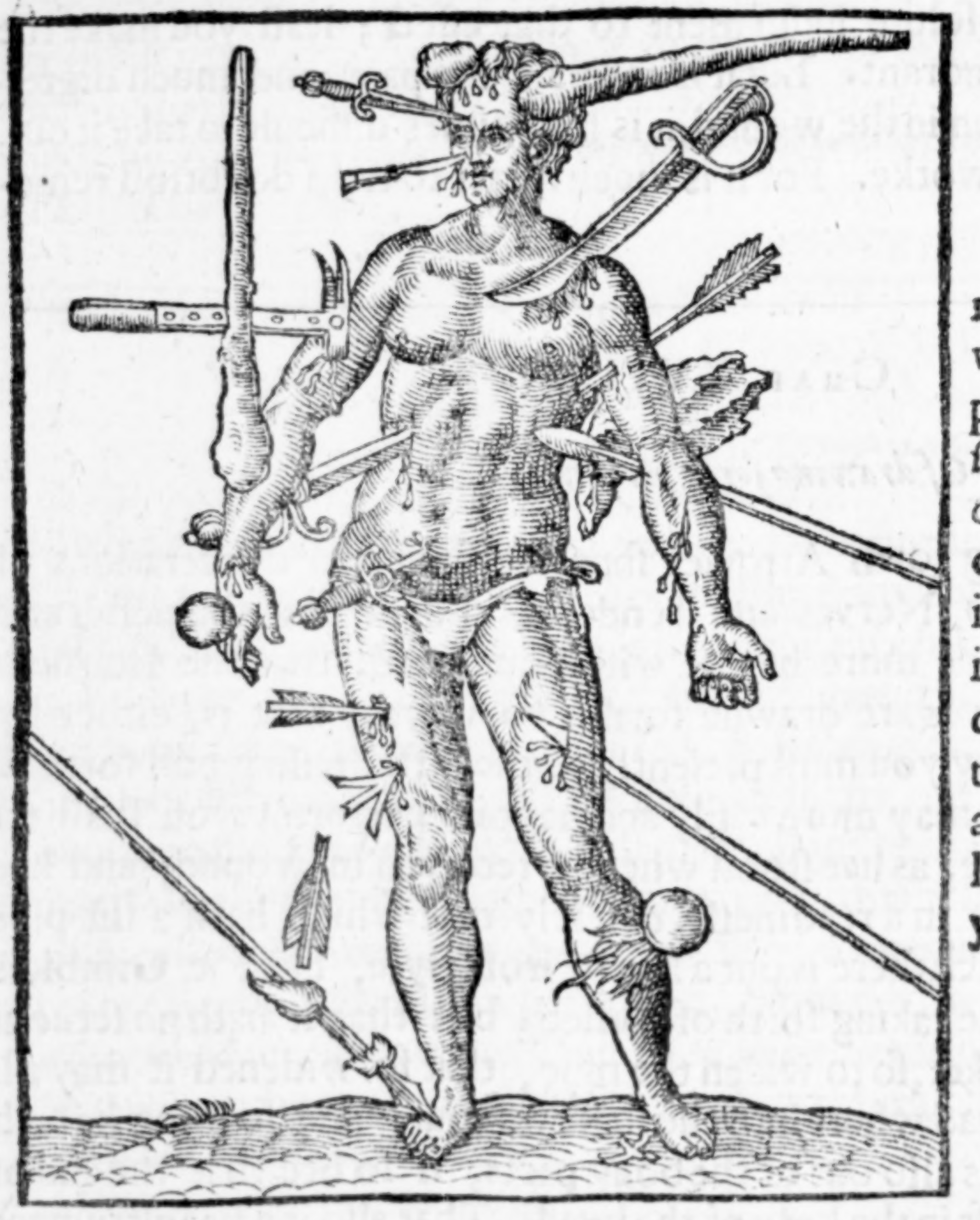
YOu muſt in drawing forth Arrowes ſhun inciſions and dilacerations of Veines and Atteries, Nerves and Tendons. For it is a ſhamefull and bungling part to doe more harme with your hand, than the Iron hath done. Now Arrowes are drawne forth two wayes, that is, either by extraction, or impulſion. Now you muſt preſently at the firſt dreſſing pull forth all ſtrange bodies, which that you may more eaſily and happily performe, you ſhall ſet the Patient in the ſame poſture, as hee ſtood when he received his wound; and hee muſt alſo have his Inſtruments in a readineſſe, chiefely that which hath a ſlit pipe and toothed without, into which there is put a ſharpe iron ſtyle, like the Gimblets we formerly mentioned for the taking forth of Bullets; but that it hath no ſcrue at the end, but is larger and thicker, ſo to widen the pipe, that ſo widened it may fill up the hole of the Arrowes head where into the ſhaft was put, and ſo bring it forth with it, both out of the fleſhy as alſo out of the bony parts, if ſo bee that the end of the ſhaft be not broken, and left in the hole of the head. That alſo is a fit Inſtrument for this purpoſe, which opens the other end toothed on the outſide, by preſſing together of the handle. You ſhall finde the Iron or head that lies hid by theſe ſignes, there will be a certaine roughneſſe and inequalitie obſervable on that part if you feele it up and downe with your hand; the fleſh there will be bruiſed, livid, or blacke, and there is heavineſſe and paine felt by the patient both there and in the wound.

A deliniation of Inſtruments fit to draw forth the heads of Arrowes and Darts, which are left in the wound without their ſhafts.



A hooked Inſtrument fit for to draw forth ſtrange bodies,as peices of Maile, and ſuch other things as it can catch hold of, which may alſo bee uſed in wounds made by Gunſhot.





But if by chance either Arrowes,Darts or Lances,or any winged head of any other weapon, bee run through and left ſticking in any part of the body,as the Thigh, with a portion of the ſhaft or ſtaffe ſlivered in peices,or broken off; then it is fit the Chirurgion with his cutting mullets ſhould cut off the end of the ſtaffe or ſhaft, and then with his other mullets plucke forth the head, as you may ſee by this Figure.

Chap. XIX.

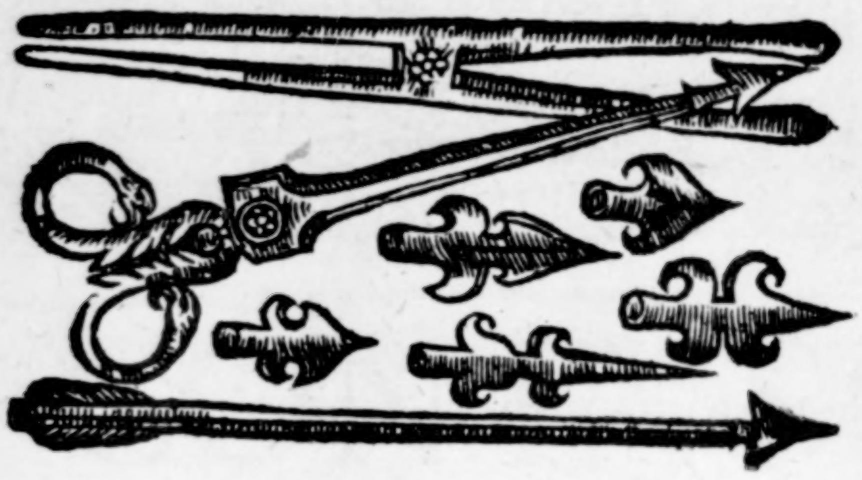
How Arrowes broken in a wound may be drawne forth.

When to draw forth the weapon on the contrary ſide.

But if it chance that the weapon is ſo broken in the wound, that it cannot bee taken hold on by the formerly mentioned Mullets, then muſt you draw,or plucke it out with your Crane,or Crowes bill,and other formerly deſcribed Inſtruments. But if the ſhaft be broken neare the head,ſo that you cannot take hold thereof with your Cranes bill, then you ſhall draw it forth with your Gimblet which we deſcribed before to draw forth bullets; for if ſuch a Gimblet can be faſtened in Bullets,it may farre better take hold of wood. But if the head be barbed, as uſually, the Engliſh arrowes are, then if it may be conveniently done,it will be very fitting to thruſt them through the parts. For if they ſhould be drawne out the ſame way they went in, there would bee no ſmall danger of breaking or tearing the Veſſells and Nerves by theſe hooked barbes. Wherefore it is better to make a ſection on the other ſide whither the head tended, and ſo give it paſſage forth if it may bee eaſily done; for ſo the wound will bee the more eaſily clenſed and conſolidated. But on the the contrary, if the point tend to any bone,or have many muſcles or thicke fleſh againſt the head thereof, as it happens ſometimes in the Thighes, Legges and Armes; then you muſt not thruſt the head thorough, but rather draw it out the ſame way it came in, dilating the wound with fit Inſtruments, and by ſkill in Anatomie ſhunning the larger Nerves and Veſſells. Therefore for this purpoſe put a hollow Dilater into the wound, and therewith take hold of both the barbes or wings of the head; and then take faſt hold of the head with your Cranes-bill,and ſo draw them forth all three together.

When by the ſame way it went in.

A Dilater hollowed on the inſide, with a Cranes-bill to take hold of the barbed head.



Chap. XX.

What to be done, when an Arrow is left faſtned or ſticking in a bone.

But if the weapon be ſo depact and faſtned in a bone that you cannot drive it forth on the other ſide, neither get it forth by any other way than that it entred in by; you muſt firſt gently moove it up and downe, if it ſticke very faſt in, but have a ſpeciall care that you doe not breake it, and ſo leave ſome fragment thereof in the bone; then take it forth with your Crowes bill, or ſome other fit Inſtrument formerly deſcribed. Then preſſe forth the blood, and ſuffer it to bleed ſomewhat largely, yet according to the ſtrength of the Patient and nature of the wounded part. For thus the part ſhall be eaſed of the fulneſſe and illneſſe of humors, and leſſe moleſted with inflammation, putrefaction and other ſymptomes which are cuſtomarily feared. When the weapon is drawne forth, and the wound once dreſſed, handle it, if ſimple, as you doe ſimple wounds; if compound, then according to the condition and manner of the complication of the effects; Certainly the Oyle of Whelpes formerly deſcribed is very good to aſſwage paine. To conclude, you ſhall cure the reſt of the Symptomes according to the method preſcribed in our Treatiſe of wounds in generall, and to that wee have formerly delivered concerning wounds made by Gunſhot.

A Caution.

The benefit of bleeding in wounds.

Chap. XXI.

Of poyſoned wounds.

If theſe wounds at any time proove poyſoned, they have it from their primitive cauſe, to wit, the empoiſoned Arrowes, or Darts of their enemies. You may finde it out both by the propertie of the paine; if that it bee great and pricking, as if continually ſtung with Bees, for ſuch paine uſually enſues in wounds poyſoned with hot poyſon, as Arrowes uſually are; Alſo you ſhall know it by the condition of the wounded fleſh; for it will become pale and grow livid, with ſome ſignes of mortification. To conclude, there happen many and maligne ſymptomes upon wounds which are empoyſoned, being ſuch as happen not in the common nature of uſuall wounds. Therefore preſently after you have plucked forth the ſtrange bodies, encompaſſe the wound with many and deepe ſcarrifications, apply ventoſes with much flame, that ſo the poyſon may bee more powerfully drawne forth; to which purpoſe the ſucking of the wound, performed by one whoſe mouth hath no ſoareneſſe therein, but is filled with oyle, that ſo the poyſon which he ſucks may not ſticke, nor adhere to the part, will much conduce. Laſtly, it muſt be drawne forth by rubefying, veſicatory and cauſtick medicines, and aſſailed by ointments, cataplaſmes, emplaſters, and all ſorts of locall medicines.

The ſignes of poyſoned wounds.

Remedies in poyſoned wounds.

The end of the Eleventh Booke.

OF CONTVSIONS AND GANGRENS.

THE TVVELFTH BOOKE.

CHAP. I.

Gal.Lib.de artis conſtitut.

Sect.2.lib.de fracturis.

Cauſes of Bruiſes and Sugillations.

Sect.2.lib. de fract.

A Contuſion, according to *Galen*, is a ſolution of Continuity in the fleſh or bone, cauſed by the ſtroake of ſome heavy and obtuſe thing, or a fall from an high. The ſymptome of this diſeaſe is by *Hippocrates* called *Pelioſis*, and *Melaſma*, that is to ſay, blackneſſe & blewneſſe; the Latins tearme it *Sugillatum*. There are divers ſorts of theſe Sugillations or blackneſſes, according as the blood is poured forth into the more inward or outward part of the body. The blood is poured forth into the body, when any (for example) falls from an high, or hath any heavy weight falls upon him, as it often happens to ſuch as worke in Mines, or are extreamely racked or tortured; and ſometimes by too loud and forcible exclamation. Beſides alſo by a Bullet ſhot through the body, blood is poured forth into the bellies, and ſo often evacuated by the paſſages of the Guts and bladder. The ſame may happen by the more violent and obtuſe blowes of a hard Trunchion, Club, Stone, and all things which may bruiſe and preſſe the blood out of the veſſells either by extending or breaking them. For which cauſes alſo the exteriour parts are contuſed, or bruiſed ſometimes with a wound, ſometimes without, ſo that the skinne being whole, and as farre as one can diſcerne, untoucht, the blood poures it ſelfe forth into the empty ſpaces of the muſcles, and betweene the skinne and muſcles; which affect the Ancients have tearmed *Ecchymoſis*; *Hippocrates* calls it by a peculiar name *Nauſioſis*, for that in this affect the ſwollne veines ſeeme as it were to vomit, and verily doe vomit or caſt forth the ſuperfluous blood which is conteined in them. From theſe differences of Contuſions are drawne the indications of curing, as ſhall appeare by the enſuing diſcourſe.

CHAP. II.

Of the generall cure of great and enormous Ccontuſions.

THe blood poured forth into the body, muſt bee evacuated by viſible and not viſible evacuation. The viſible evacuation may be performed by bloodletting, Cupping-glaſſes, hornes, ſcarification, horeſeleeches and fit purgative medicines; if ſo bee the patient have not a ſtrong and continuall feaver; The not viſible evacuation is performed by

reſol-

Ad ſentent.62. ſect.3.lib.de Articulis.

A potion to diſſolve and evacuate clotted blood.

A hot ſheeps skinne.

A diſcuſsing oyntment.

A ſudorificke potion to diſſolve congealed blood.

Surups hindering putrifaction and congealing of blood.

reſolving and ſudorificke potions, bath a ſlender diet. Concerning Blood-letting *Galens* opinion is plaine, where he bids, in a fall from an high place, and generally for bruiſes upon what part ſoever they be, to open a veine, though the parties affected are not of a full conſtitution; for that unleſſe you draw blood by opening a veine, there may inflammations ariſe from the concreate blood, from whence without doubt evill accidents may enſue. After you have drawne blood give him foure ounces of Oxycrate to drinke; for that by the tenuity of its ſubſtance hinders the coagulation of the blood in the belly, or in ſtead thereof you may uſe this following potion. ℞. *rad. Gentianæ* ʒiij; *bulliant in Oxycrato; in colatura diſſolve rhei electi* ʒj *fiat potio.* Theſe Medicines diſſolve, and caſt forth by ſpetting and vomite the congealed blood, if any thereof be conteined in the ventricle or lungs; it wil be expedient to wrap the patient preſently in a ſheepes skinne, being hot and newly taken from the ſheepe, and ſprinkled over with a little myrrhe, creſſes and ſalt, and ſo to put him preſently in his bed, and then cover him ſo that he may ſweat plentifully. The next day take away the ſheeps-skinne, and annoint the body with the following anodyne and reſolving unguent. ℞. *unguent. de althæa* ℥vj. *olei Lumbric. chamam. anethi. an* ℥ij. *terebinth. venetæ* ℥iiij. *farinæ fænugræ. roſar. rub. pulveriſat. pul. myrtillorum, an* ℥j. *fiat litus ut dictum eſt.* Then give this potion which is ſudorificke and diſſolves the congealed blood. ℞. *Ligni guaiaci* ℥viij. *radicis enulæ camp. conſolid. majoris, ireos Florent. polypod. querni, ſeminis coriandri, aniſi, an* ℥ß. *glycyrhiz.* ℥ij. *nepetæ, centaureæ, caryophyl. cardui ben. verbenæ, an, m. ſ. aquæ fontanæ lib.* xij. Let them bee all beaten and infuſed for the ſpace of twelve houres, then let them boyle over a gentle fire untill the one halfe bee conſumed; let the patient drinke ſome halfe pinte of this drinke in the morning, and then ſweate ſome houre upon it in his bed, and doe this for ſeaven or eight dayes. If any poore man light upon ſuch a miſchance, who for want of meanes cannot bee at ſuch coſt, it will be good, having wrapped him in a ſheete, to bury him up to the chin in Dung mixed with ſome hay or ſtraw, and there to keepe him, untill he have ſweat ſufficiently. I have done thus to many with very good ſucceſſe. You ſhall alſo give the patient potions made with ſyrups which have power to hinder the coagulation and putrefaction of the blood; ſuch as ſyrupe of Vinegar, or Lemons, of the juice of Citrons and ſuch others to the quantitie of an ounce diſſolved in ſcabious, or *Carduus* water. You may alſo preſently after the fall give this drinke, which hath power to hinder the coagulation of the blood, and ſtrengthen the bowells.

A drinke for the ſame purpoſe.

A pouder for the ſame.

The diſtelled water of greene Walnuts.

Baths.

Lib.3. de vict. acut. & lib.3. de morb.

℞. *Rhei elect. in pul. redacti* ʒj, *aquæ rubiæ majoris, & plantagin. an.* ℥j. *theriacæ* ʒß. *ſyrupi de roſis ſiccis,* ℥ß, *fiat potus.* Let him take it in the morning for foure or five dayes. In ſteed hereof you may make a potion of one dramme of *Sperma ceti* diſſolved in bugloſſe or ſome other of the waters formerly mentioned, and halfe an ounce of ſyrupe of Maiden-haire; if the diſeaſe yeeld not at all to theſe formerly preſcribed medicines, it will be good to give the patient for nine dayes, three or foure houres before meate ſome of the following powder. ℞. *rhei torrefacti, rad. rub. majoris, centaurei, gentianæ, ariſtolo. rotundæ, an.* ℥ß, give ʒj. heereof with ſyrupe of Venegar and *Carduus* water. They ſay that the water of greene Walnuts, diſtilled by an Alembicke, is good to diſſolve congealed and knotted blood. Alſo you may uſe bathes made of the decoction of the rootes or Orris, Elecampane, Sorrell, Fennell, Marſhmallowes, Water-ferne, or Oſmund the waterman, the greater Comfery; the ſeeds of Fænugreeke; the leaves of Sage, Marjerome; the floures of Camæmile, Melilote and the like. For a warme bath hath power to rarifie the skin, to diſſolved the clotted blood, by cutting the tough & mitigating the acride humors, by calling them forth into the ſurface of the body, and relaxing the paſſages thereof, ſo that the rebellious qualities being orecome, there enſues an eaſie evacuation of the matter by vomite, expectoration, if it flote in the ſtomacke, or be conteined in the cheſt; but by ſtoole & Vrine, if it lye in the lower parts; by ſweates and tranſpiration if it lye next under the skin. Wherefore bathes are good for thoſe who have a *Peripneumonia* or inflammation of their Lunges, or a Pleuriſie, according to the minde of *Hippocrates*, if ſo be that they be uſed, when the feaver begins to be aſſwaged; for ſo they mitigate paine, helpe forwards ſuppuration, and haſten the ſpitting up of the purulent matter. But we would not have the patient enter into the bath, unleſſe he have firſt uſed generall remedies, as blood-letting and purging; for otherwiſe there will be no ſmall danger, leaſt the humors diffuſed by the heate of the bath, cauſe a new defluxion into the parts affected. Wherefore doe not thou by any meanes attempt, to uſe this or the like remedy, having not firſt had the advice of a Phyſition.

CHAP. III.

How we muſt handle Contuſions, when they are joyned with a wound.

EVery great Contuſion forthwith requires blood-letting, or purging, or both; and theſe either for evacuation, or revulſion. For thus *Hippocrates* in a contuſion of the Heele, gives a vomitory potion, the ſame day, or elſe the next day after the heele is broken. And then if the Contuſion have a wound aſſociating it, the defluxion muſt be ſtayed at the beginning, with an oyntment made of Bole Armenicke, the whites of egges, and oyle of roſes, and myrtles, with the pouders of red roſes, Allome and maſtich. At the ſecond dreſſing apply a digeſtive made of the yoalke of an egge, oyle of violets and Turpentine. This following Cataplaſme ſhal be appyled to the neare parts to help forwards ſuppuration. ℞. *rad. althæ, & lilio. an.* ℥iiij *fol. malv. violar. ſenecionis, an. M.* ſſ *coquantur complete, & paſſentur per ſetaceum, addendo butyri recentis & olei viol. an.* ℥iij. *farinæ volatilis quant. ſufficit; fiat cataplaſma ad formam pultis liquidæ.* Yet have a care in uſing of Cataplaſmes, that you do not too much exceede; for too frequent and immoderate uſe of them makes wounds plegmonous, ſordide and putride. Wherefore the wound after it is come to ſuppuration muſt be cleanſed, filled with fleſh and cicatrized; unleſſe haply the contuſed fleſh ſhall be very much torne, ſo that the native heate forſake it, for then it muſt be cut away. But if there be any hope to agglutinate it, let it be ſowed, and other things performed according to Art; but the ſtitches muſt not be made ſo cloſe together, as when the wound is ſimple, and without contuſion; for ſuch wounds are eaſily inflamed and ſwell up, which would occaſion either the breaking of the thred or fleſh, or tearing of the ſkinne.

Sect. 2. lib. fract.

A ſuppurative Cataplaſme.

A caution to be obſerved.

How contuſed wounds muſt be ſowed

CHAP. IV.

Of theſe Contuſions which are without a wound.

IF the ſkinne being whole and not hurt, as farre as can be diſcerned, the fleſh which lyes under it be contuſed, and the blood poured forth under the ſkin make an *Ecchymoſis*, then the patient muſt be governed according to Art untill the maligne ſymptomes, which commonly happen, be no more to be feared. Wherfore in the beginning draw blood on the oppoſite ſide, both for evacuation and revulſion. The contuſed part ſhall be ſcarified with equall ſcarifications; then ſhall you apply cupping-glaſſes or hornes, both for evacuation of the blood which cauſes the tumor and Tenſion in the part; as alſo to ventilate and refrigerate the heate of the part, leaſt it turne into an Abſceſſe. Neither muſt we in the meane while omit gentle purging of the belly. The firſt topicke medicines ought to bee aſtrictives which muſt lye ſome ſhort while upon the part, that ſo the Veines, and Arteries may be as it were ſtraitned and cloſed up, and ſo the defluxion hindred; as alſo that the part it ſelfe may be ſtrengthened. This may be the forme of ſuch a remedy, ℞. *Albumina ovorum nu.* iij. *olei myrtini & roſacei, an.* ℥j. *boli armeni, & ſanguin. dracon. an.* ℥ß. *nucum cupreſſ. gallarum, pul. aluminis uſti, an.* ʒij. *incorporentur omnia addendo aceti parum, fiat medicamentum.* Then you ſhall reſolve it with a fomentation, Cataplaſme, and diſcuſſing emplaiſters.

Phlebotomie.

Scarifying. Cupping glaſſes.

Aſtrictives how good in Contuſions.

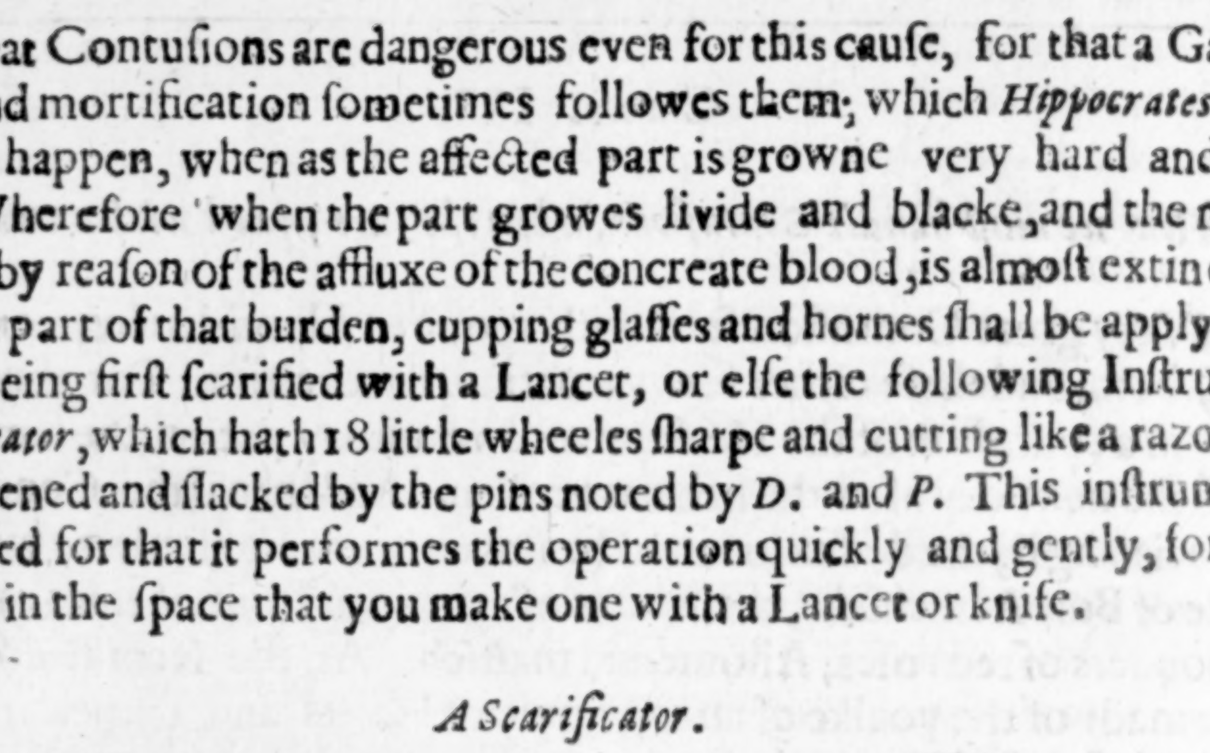
After aſtrictives muſt follow diſcuſſives.

Chap. V.

By what meanes the contuſed part may be freed from the feare and imminent danger of a Gangreene.

Sect. 2. lib. de fract. Great Contuſions are dangerous even for this cauſe, for that a Gangreene and mortification ſometimes followes them; which *Hippocrates* teacheth to happen, when as the affected part is growne very hard and liquide. *The cauſe of a Gangreene.* Wherefore when the part growes livide and blacke, and the native colour thereof, by reaſon of the affluxe of the concreate blood, is almoſt extinct; chiefely, to eaſe the part of that burden, cupping glaſſes and hornes ſhall be applyed to the part it ſelfe being firſt ſcarified with a Lancet, or elſe the following Inſtrument termed a *Scarificator*, *The uſe of a Scarificator.* which hath 18 little wheeles ſharpe and cutting like a razour, which may be ſtraitened and ſlacked by the pins noted by *D.* and *P.* This inſtrument is to be commended for that it performes the operation quickly and gently, for it makes 18 inciſiones in the ſpace that you make one with a Lancet or knife.

A Scarificator.



A. *Shewes the cover.* B. *The Boxe, or Caſe.*

Then ſhall yon foment the part with ſtrong Venegar wherein the roootes of radiſh or of Dragons, Cuckow-pint, *Salomons* Seale, *Auripigmentum* and the like have *A fomentation to diſcuſſe and draw to the skinne.* beene boyled; for ſuch acride things doe powerfully heat, reſolve and draw the concreate blood from the inner part of the body unto the skinne, which by its ſetling in the part affected, prohibits the entrance of the vitall ſpirits, the preſervers of its integrity; yea alſo extinguiſheth the native heate of the ſame part. Now wee muſt not uſe theſe things but with great diſcretion, leaſt ſo we draw not onely that blood which is poured forth of the veſſells, but alſo the other which is contained in the veſſels. Moreover alſo we muſt not uſe them, unleſſe when the defluxion is ſtayed. For ſmall contuſions (which *Galen* judgeth by the ſoftneſſe of the contuſed *In ſect. 2. lib. de fractur.* part) it will bee ſufficient to apply to diſcuſſe them, Virgins waxe diſſolved and mixed with Cummim ſeedes, Cloves, the roote of blacke Briony, (which hath a wonderfull faculty to diſcuſſe all blackeneſſes and ſugillations) for the ſame purpoſe, you may alſo apply wormewood bruſed and ſo warmed in a diſh and ſprinkled over with a little white wine. Alſo fry wormewood with oyle of cammomill, branne, the powder of Cloves, and Nutmegs, adding thereto a little *aqua vita*, then put it all in a linnen cloth and apply it hot to the part. The following emplaſter doth *A diſcuſſing plaiſter.* powerfully diſcuſſe congealed blood. ℞. *Picis nigræ* ℥ij. *Gum. Elemi.* ℥iß. *ſtyracis liquidæ & terebinth. com. an.* ℥ß. *pul. ſulphuris vivi.* ℥j. *Liquefiant ſimul, fiat Emplaſtrum*; and let be ſpred upon leather and ſo applyed.

Chap. VI.

Of that ſtrange kinde of ſymptome which happens upon contuſions of the ribbes.

The fleſh contuſed ſometimes by great violence becomes mucous and ſwolne, or puffed up like Veale, which the butchers blow up, the skinne remaining whole. This is ſeene and happens chiefely in that fleſh which is about the ribs; for this being bruiſed either by a blow, or fall, or renitencie, or any other ſuch like cauſe; if you preſſe it with your hand, a certaine windineſſe goeth out thereof with a ſmall whyzzing, which may be heard, and the print of your finges will remaine as in *œdema's*. Vnleſſe you quickely make fit proviſion againſt this ſymptome, there is gathered in that ſpace which the fleſh departing from the bones, leaves empty, a certaine purulent *ſanies*, which divers times foules and corrupts the ribs. It will be cured, if the mucous tumor be preſently preſſed, and ſtraightly bound with ligatures, yet ſo that you hinder not the breathing, when as the affect happens upon the ribs and parts of the Cheſt. Then apply to the part a plaiſter of *Oxycroceum* or *diachylon Ireatum* with the emplaiſter *de meliloto*; alſo diſcuſſing fomentaions ſhall be uſed.

Hip. ſect. 3. lib. de Art. ſent, 58. & 65.

Remedies for a mucous and flatulent tumor of the ribbes.

The cauſe.

The cauſe of ſuch a tumor is a certaine mucous flegme; ſeeing that nature is ſo weake that it cannot well digeſt the nouriſhment, and aſſimulate it to the part: but leaves ſomething as it were halfe concocted. No otherwiſe than the conjunctive coate of the eye is ſometime ſo lifted up and ſwolne by a ſtroake, that it ſtartes as it were out of the orbe of the eye, leaving ſuch filth or matter as wee ſee thoſe which are bleard eye to be troubled withall; becauſe the force and naturall ſtrength of the eyes is become more weake, either by the fault of the proper diſtemperature, or the aboundance of moyſture which flowes thither, as it happens in thoſe tumors which are againſt nature. For flatulencies are eaſily rayſed from a watriſh and flegmatique humors wrought upon by weake heate, which mixed with the reſt of the humor, the tumor becomes higher.

Chap. VII.

A diſcourſe of Mumia, *or Mummie.*

Peradventure it may ſeeme ſtrange what may be the cauſe, why in this Treatiſe of curing contuſions, or bruiſes, I have made no mention of giving Mummie either in bole, or potion to ſuch as have falne from high places, or have beene otherwiſe bruiſed, eſpecially ſeeing it is ſo common and uſuall, yea the very firſt and laſt medicine of almoſt all our practitioners at this day in ſuch a caſe. But ſeeing I underſtood, and had learnt from learned Phyſitions, that in uſing remedies, the indication muſt alwaies be taken from that which is contrary to the diſeaſe, how could I? how can any other give Mummie in this kinde of diſeaſe, ſeeing we cannot as yet know what Mummie is, or what is the nature and eſſence thereof? So that it cannot certainely be judged, whether it have a certaine property contrary to the nature and effects of contuſions. This how it may have, I have thought good to relate ſomewhat at large; neither doe the Phyſitions who preſcribe Mummie, nor the Authours that have written of it, nor the Apothecaries that ſell it, know any certainty thereof. For if you reade the more ancient, *Serapio*, and *Avicen*, or the moderne *Matthiolus* and *Thevet*, you ſhall finde quite different opinions. Aske the Merchants who bring it to us, aske the Apothecaries who buy it of them, to ſell it to us, and you ſhall heare them ſpeake diverſly heereof, that in ſuch variety of opinions, there is nothing certaine and manifeſt. *Serapio* and *Avicen* have judged Mummie to bee nothing elſe but *Piſſaſphalthum*; now *Piſſaſphaltum* is a certaine froth or foame riſing from the Sea, or Sea waters; this ſame foame as long as it ſwimmes upon the water is ſoft and in ſome ſort

Mummie a frequent and uſuall medicine in contuſions.

The reaſon that the Author makes no mention thereof amongſt his medicines.

The opinion of the *Arabians* concerning it.

liquid: but being driven upon the ſhore by force of tempeſt, and working of the ſea, and ſticking in the cavityes of the rockes; it concreates into ſomewhat a harder ſubſtance than dryed pitch, as *Dioſcorides* ſaith. *Belonius* ſaith, that Mummie is onely knowne to *Ægypt* and *Greece*. Others write that it is mans fleſh, taken from the carcaſes of ſuch as are dead, and covered over in the ſandes in the deſartes of *Arabia*; in which Countrey they ſay the ſands are ſometimes carried and rayſed up with ſuch force and violence of the windes, that they overthrow and ſuffocate ſuch paſſingers as they meete withall; the fleſh of theſe dryed by the ſand and winde they affirme to be Mummy.

Lib.4,cap.84.

Another opinion of Mummie.

Another.

Mathiolus following the more uſuall and common opinion, writes that Mummie is nothing elſe than a liquor flowing from the Aromaticke embalments of dead bodyes, which becomes dry and hard. For underſtanding whereof you muſt know from all manner of antiquity, that the Egyptians have beene moſt ſtudious in burying and embalming their dead; not for that end that they ſhould become medicines for ſuch as live, for they did not ſo much as reſpect or imagine ſo horride a wickedneſſe. But either for that they held an opinion of the generall reſurrection, or that in theſe monuments they might have ſomething, whereby they might keepe their dead friends in perpetuall remembrance.

Thevet not much diſſenting from his owne opinion, writes that the true Mummie is taken from the monuments and ſtony tombes of the anciently dead in Egypt, the chinkes of which tombes were cloſed, and cimented with ſuch diligence; but the encloſed bodyes embalmed with precious ſpices with ſuch art for eternity, that the linnen veſtures which were wrapt about thē preſently after their death, may be ſeene whole even to this day; but the bodies themſelves, are ſo freſh that you would judge them ſcarce to have been three dayes buryed. And yet in thoſe Sepulchers and Vaultes from whence theſe bodyes are taken, there have beene ſome corpes of two thouſand yeeres old. The ſame, or their broken members are brought to Venice from Syria and Egypt, and thence diſperſt over all Chriſtendom. But according to the different condition of men, the matter of their embalments were divers; for the bodyes of the Nobility or Gentry are embalmed with Myrrhe, Aloes, Saffron, and other precious ſpices, and Drugs; but the bodyes of the common ſort whoſe poverty and want of meanes could not undergoe ſuch coſt, were embalmed with *aſphaltum* or *piſſaſphaltum*.

What our Mummie uſually is.

Now *Mathiolus* ſaith that all the Mummie which is brought into theſe parts is of this laſt kinde and condition. For the Noble men and cheefs of the province ſo religiouſly addicted to the monuments of their anceſtors, would never ſuffer the bodyes of their friends, and kindred to be tranſported hither for filthy gaine, and ſuch deteſted uſe, as we ſhall ſhew more at large at the end of this worke.

Which thing ſometimes mooved certaine of our French Apothecaries, men wonderous audacious, and covetous, to ſteale by night the bodyes of ſuch as were hanged, and embalming them with ſalt and Drugges they dryed them in an Oven, ſo to ſell them thus adulterated in ſteed of true Mummie. Wherefore wee are thus compelled both fooliſhly and cruelly to devoure the mangled and putride particles of the carcaſſes of the baſeſt people of Egypt, or of ſuch as are hanged, as though there were no other way to helpe or recover one bruiſed with a fall from a high place, than to bury man by an horrid inſertion in their, that is, in mans guts. Now if this Drugge were any way powerfull for that they require, they might perhaps have ſome pretence, for this their more than barbarous inhumanity.

Mummie is no way good for contuſions,

But the caſe ſtands thus, that this wicked kinde of Drugge, doth nothing helpe the diſeaſed, in that caſe, wherefore and wherein it is adminiſtred, as I have tryed an hundred times, and as *Thevet* witneſſes, he tryed in himſelfe, when as hee tooke ſome thereof by the advice of a certaine Iewiſh Phyſition in Egypt, from whence it is brought; but it alſo inferres many troubleſome ſymptomes, as the paine of the heart or ſtomacke, vomiting and ſtinke of the mouth.

But hurtfull, and how?

I perſwaded by theſe reaſons, doe not onely my ſelfe preſcribe any hereof to my patients, but alſo in conſultations, endeavour what I may, that it bee not preſcribed by others. It is farre better according to *Galens* opinion *in Method. med.* to drinke ſome oxycrate, which by its frigidity reſtraines the flowing blood, and by its tenuity of ſubſtance diſſolves and diſcuſſes the congealed clotts thereof. Many reaſons of learned Phyſitions (from whom I have learned this hiſtory of Mummie) drawne from Philoſophy, whereby they make it apparant, that there can be no uſe of this or that Mummie in contuſions, or againſt flowing or congealed blood, I willingly omit, for that I thinke it not much beneficiall to Chirurgions to inſert them heere. Wherefore I judge it better to beginne to treate of Combuſtions, or Burnes.

The effects of oxycrate in Contuſions.

Chap. VIII.

Of Combuſtions and their differences.

ALL Combuſtions whether occaſioned by Gun-powder, or by ſcalding oyle, water, ſome mettall or what things ſoever elſe, differ onely in magnitude. Theſe firſt cauſe paine in the part, and imprint in it an unnaturall heate. Which ſavouring of the fire, leaves that impreſſion, which the Greekes call *Empyreuma*. There are more or leſſe ſignes of this impreſſion, according to the efficacie of the thing burning, the condition of the part burned, and ſtay upon the ſame. If the Combuſtion be ſuperficiary, the skin riſes into puſtles and bliſters, unleſſe it be ſpeedily prevented. If it be low or deepe in, it is covered with an *Eſchar* or cruſt, the burnt fleſh by the force of the fire turning into that cruſty hardneſſe. The burning force of the fire, upon whatſoever part it falls, leaves a hot diſtemper therein, condenſates, contracts, and thickens the skinne, whence paine proceedes; from paine there comes an attraction of humors, from the adjacent and remote parts. Theſe humors preſently turned into watriſh or ſerous moyſture, whileſt they ſeeke to paſſe forth, and are hindred thereof by the skinne condenſated by the action of the fire, they lift it up higher, and rayſe the bliſters which we ſee. Hence diverſe Indications are drawne, whence proceedes the variety of medicines for burnes. For ſome take away the *Empyreuma*, that is, the heate of the fire (as we terme it) and aſſwage the paine; other hinder the riſing of bliſters; otherſome are fit, to cure the ulcer, firſt to procure the falling away of the *Eſchar*, then to clenſe, generate fleſh and cicatrize it. Remedyes fit to aſſwage paine, and take away the fiery heate, are of two kindes; for ſome doe it by a cooling faculty, by which they extinguiſh the preternaturall heate, and repreſſe or keepe backe the blood and humors, which flow into the parts by reaſon of heat & paine. Others endued with contrary faculties, are hot and attractive; as which by relaxing the skin, and opening the pores, reſolve and diſſipate the ſerous humors, which yeeld both beginning, and matter to the puſtles, and ſo by accident aſſwage the paine and heat. Refrigerating things, are cold water, the water of Plantaine, Night-ſhade, Henbane, Hemlocke; the juyces of cooling hearbes, as Purſelaine, Lettuce, Plantaine, Houſleeke, Poppye, Mandrake and the like. Of theſe ſome may be compounded, as ſome of the fore-named juyces beaten with the white of an egge; Clay beaten and diſſolved in ſtrong Venegar; roch Alome diſſolved in water, with the whites of egges beaten therein; writing inke mixed with Venegar and a little Camphire; *Vnguentum nutritum*, and alſo *Populeon* newly made. Theſe and the like ſhall be now and then renewed chiefely at the firſt, untill the heate and paine be gone. But theſe ſame remedyes muſt be applyed warme, for if they ſhould be layd, or put to cold, they would cauſe paine, and conſequently defluxion; beſides alſo their ſtrength could not paſſe, or enter into the part, or be brought into action; but ſo applyed they aſſwage paine, hinder inflammation and the riſing of bliſters.

The reaſon and ſyptomes of Combuſtions.

The cauſe of the bliſters riſing upon burnes.

Variety of medicines to take away the heate and aſſwage the paine.

CHAP. IX.

Of hot and attractive medicines to be applyed to burnes.

How fire may aſſwage the paine of burning.

Beaten Onions good for burns and how.

Lib. 5. ſimpl.

How often in a day theſe muſt be dreſſed.

Medicines for an *Eſchar*.

AMongſt the hot and attractive things which by rarifying, drawing out, and diſſolving, aſſwage the paine and heate of combuſtions, the fire challenges the firſt place, eſpecially when the burning is but ſmall. For the very common people know and finde by dayly experience, that the heate of the lightly burnt part vaniſhes away, and the paine is aſſwaged, if they hold the part which is burnt ſome prety while to the heate of a lighted candle, or burning coales; for the ſimilitude cauſeth attraction. Thus the externall fire whileſt it drawes forth the fire which is internall and inuſt into the part, is a remedy againſt the diſeaſe it cauſed and bred. It is alſo an eaſily made and approved remedie, if they preſently after the burne apply to the grieved part raw Onions beaten with ſome ſalt. Now you muſt note, that this medicine takes no place, if it be once gone into an ulcer, for it would increaſe the paine and inflammation; but if it bee applyed when the skinne is yet whole and not excoriated, it doth no ſuch thing, but hinders the riſing of puſtles and bliſters. ***Hippocrates*** for this cauſe alſo uſes this kind of remedy in procuring the fall of the *Eſchar*. If any endevour to gaineſay the uſe of this remedy by that principle in Phyſicke, which ſayes, that contraries are cured by contraries, and therefore affirme that Onions according to the authority of *Galen*, being hot in the fourth degree, are not good for combuſtions; let him know that Onions are indeed potentially hot, and actually moyſt, therefore they rarifie by their hot quality, and ſoften the skinne by their actuall moyſture, whereby it comes to paſſe that they attract, draw forth, and diſſipate the imprinted heate, and ſo hinder the breaking forth of puſtles; To conclude, the fire as we formerly noted, is a remedy againſt the fire. But neither are diſeaſes alwayes healed by their contraryes (ſaith *Galen*) but ſometimes by their like; although all healing proceede from the contrary, this word *contrary*, being more largely and ſtricktly taken; for ſo alſo a Phlegmon is often cured by reſolving medicines, which healeth it by diſſipating the matter thereof. Therefore Onions are very profitable for the burnt parts, which are not yet exulcerated or excoriated. But there are alſo many other medicines good to hinder the riſing of bliſters; ſuch is new horſe-dung fryed in oyle of wall-nuts or Roſes, and applied to the parts. In like manner the leaves of Elder or Dane-wort boyled in oyle of nuts, and beaten with a little ſalt. Alſo quinched lime poudered and mixed with *Vnguentum Roſatum*. Or elſe the leaves of Cuckow-pint and Sage beaten together with a little ſalt. Alſo Carpenters Glue diſſolved in water and anoynted upon the part with a feather, is good for the ſame purpoſe. Alſo thicke Verniſh which polliſhers or ſword cutlers uſe, But if the paine be more vehement, theſe medicines muſt be renewed 3 or 4 times in a day and a night, ſo to mittigate the bitternes of this paine. But if ſo be we cannot by theſe remedyes hinder the riſing of bliſters, then we muſt preſently cut them as ſoone as they riſe, for that the humor contayned in them, not having paſſage forth, acquires ſuch acrimonie that it eates the fleſh which lyeth under it, & ſo cauſeth hollow ulcers: So by the multitude of cauſes & increaſe of matter the inflamation groweth greater, not only for nine daies (as the common people prattle) but for farre longer time; alſo ſome whiles for leſſe time, if the body be neither repleat with ill humors, nor plethoricke, and you have ſpeedily reſiſted the paine and heate by fit remedyes. When the combuſtion ſhall be ſo great as to cauſe an *Eſchar*, the falling away muſt be procured by the uſe of emollient and humective medicins, as of greaſes, oyles, butter, with a little *baſilicon*, or the following oyntment.

A deſcription of *Nutritum*.

℞. *Mucagin. pſillij. & cydon. an.* ℥iiij. *gummi, trag.* ℥ij. *extrahantur cum aqua parietariæ, olei lilliorum* ℥iiß. *ceræ novæ q. ſ. fiat unguentum molle.* For ulcers and excoriations you ſhall apply fit remedies, which are thoſe that are without acrimony, ſuch as *unguentum album camphoratum, deſiccativum rubrum, unguentum roſatum*, made without Venegar, or *nutritum* compoſed after this manner. ℞. *lithargyri auri* ℥iiij.

ol. roſat. ℥iij. *ol. de papaver.* ℥iiß. *ung. populeon.* ℥iiij. *camphoræ* ʒj. *fiat unguentum in mortario plumbeo ſecundum artem.* Or oyle of Egges tempered in a Leaden mortar. Alſo unquenched lime many times waſhed and mixed with *unguentum roſatum*, or freſh butter without ſalt, and ſome yolkes of egges hard roaſted. Or. ℞. *Butyri recent. ſine ſale, uſtulati, & colati* ℥vj. *vitell. ovor.* iiij. *ceruſ. lotæ in aqua plantag. vel roſar.* ℥ß. *tutkiæ ſimiliter lotæ*, ʒiij. *plumbi uſti, & loti*, ʒij. *Miſceantur omnia ſimul, fiat linimentum ut decet.* Or elſe, ℞. *cort. ſambuc. viridis, & olei roſat. an. lib.* j. *bulliant ſimul lento igne, poſtea colentur, & adde olei ovorum* ℥iiij. *pul. ceruſſ. & tuthiæ præpar. an.* ℥j. *ceræ albæ quantum ſufficit, fiat unguent. molle ſecundum artem.* But the quantity of drying medicines may alwayes be encreaſed or diminiſhed according as the condition of the ulcer ſhall ſeeme to require. The following remedies, are fit to aſſwage paine, as the mucilages of Line ſeedes, of the ſeedes of *Pſilium*, or Flea-wort, and quinces extracted in roſewater, or faire water, with the addition of a little camphire; and leaſt that it dry too ſpeedily, adde thereto ſome oyle of Roſes. Alſo five or ſixe yoalkes of egges mixed with the mucilages of Line ſeede, the ſeede of *Pſilium*, and quinces often renewed, are very powerfull to aſſwage paine. The women which attend upon the people in the Hoſpitall in *Paris*, doe happily uſe this medicine againſt burnes. ℞. *Lard. conſciſi libram unam*; let it be diſſolved in Roſewater, then ſtrained through a linnen cloath, then waſh it foure times with the water of hen-bane or ſome other of that kinde, then let it be incorporated with eight yolkes of new layd egges, and ſo make an oyntment. If the ſmart be great, as uſually it is in theſe kindes of wounds, the ulcer or ſores ſhall be covered over with a peice of Tiffany, leaſt you hurt them, by wiping them with ſomewhat a courſe cloath, and ſo alſo the matter may eaſily come forth, and the medicines eaſily enter in. Alſo you muſt have a care when the eyelids, lippes, ſides of the fingers, necke, the armepits, hammes, and bending of the elbow are burnt, that you ſuffer not the parts to touch one the other, without the interpoſition of ſome thing; otherwiſe in continuance of time they would grow and ſticke together. Therefore you ſhall provide for this, by fit placing the parts, and putting ſoft linnen ragges betweene them. But you muſt note, that deepe combuſtions, and ſuch as cauſe a thicker *Eſchar*, are leſſe painefull, than ſuch as are but onely ſuperficiary. The truth hereof you may perceive by the example of ſuch as have their limbes cut of, and ſeared or cauteriſed with an hot Iron; for preſently after the cauteriſing is performed they feele little paine. For this great combuſtion takes away the ſenſe, the vehemencie of the ſenſory or thing affecting the ſenſe, depriving the ſenſitive parts of their ſenſe; As wee have formerly noted when we treated of wounds and paines of the Nerves. The falling away of ſuch *Eſchars* ſhall be procured by ſomewhat a deepe ſcarification which may pierce even to the quicke, that ſo the humors which lye under it may enjoy freer perſpiration, and emollient medicines may the freelier enter in, ſo to ſoake, moyſten and ſoften the *Eſchar* that it may at length fall away. The reſt of the cure ſhall be performed by detergent and ſarcoticke medicines, adding to the former oyntments mettalline pouders, when the preſent neceſſitie ſhall ſeeme ſo to requre. But wee cannot juſtly ſay in what proportion and quantity each of theſe may be mixed, by reaſon of that variety which is in the temper and conſiſtence of bodyes, and the ſtubborneſſe and gentleneſſe of diſeaſes. After a burne the ſcarre which remaineth is commonly rough, unequall, and ill favoured: therefore wee will tell you in our treatiſe of the plague how it muſt be ſmoothed, and made even.

A remedy for burnes commonly uſed in the Hoſpitall of *Paris*.

Why deepe combuſtions are leſſe painefull than ſuperficiarie.

I muſt not here omit to tell you, that Gunpowder ſet on fire doth often ſo penetrate into the fleſh, not ulcerating nor taking off the ſkinne, and ſo inſinuate and throughly faſten it ſelfe into the fleſh by its tenuity, that it cannot be taken or drawne out thence by any remedyes, no not by *Phœnigmes* nor veſicatoryes, nor ſcarification, nor ventoſes, nor hornes, ſo that the prints thereof alwayes remaine, no otherwiſe than the markes which the Barbarians burne in their ſlaves which cannot afterwards be taken away or deſtroyed by any Art.

Markes or ſpots made in the face by cornes of Gunpowder cannot be taken away.

Chap. X.

Of a Gangreene and Mortification.

CErtainely the maligne ſymptomes which happen upon wounds, and the ſolutions of Continuity are many, cauſed either by the ignorance or negligence of the Chirurgion; or by the Patient, or ſuch as are about him; or by the malignity and violence of the diſeaſe: but there can happen no greater than a Gangreene, as that which may cauſe the mortification and death of the part, and oft times of the whole body; wherefore I have thought good in this place to treate of a Gangreene, firſt giving you the definition, then ſhewing you the cauſes, ſignes, prognoſtickes, & laſtly the manner of cure. Now a Gangreene is a certaine diſpoſition, and way to the mortification of the part, which it ſeaſeth upon, dying by little and little. For when there is a perfect mortification, it is called by the Greekes *Sphacelos*, by the Latines *Syderatio*, our countrymen terme it the fire of Saint *Anthony* or Saint *Marcellus*.

Gal. 2. ad Glauconem.

Chap. XI.

Of the generall and particular cauſes of a Gangreene.

The generall cauſe of a Gangreene.

THe moſt generall cauſe of a Gangreene is, when by the diſſolution of the harmony and joynt temper of the foure firſt qualities, the part is made unapt to receive the faculties, the Naturall, Vitall, and Animall ſpirits, by which it is nouriſhed, lives, feeles, and mooves. For a part deprived by any chance of theſe, as of the light, languiſhes and preſently dyes. Now the particular cauſes are many; and theſe either primitive, or antecedent. The primitive or externall are combuſtions, cauſed by things either actually or potentially burning; actually as by fire, ſcalding oyle or water, gunpowder fired and the like. But potentially by acride medicines; as Sublimate, vitrioll, potentiall cauteries and other things of the ſame nature: for all theſe cauſe a great inflammation in the part. But the ambient ayre may cauſe great refrigerations, and alſo a Gangreene, which cauſed *Hippocrates lib. de Aer.* to call great refrigerations of the braine *Sphaceliſme*. Therefore the unadviſed and unfit application of cold and narcoticke things, a fracture, luxation and great contuſion, too ſtrait bandages, the biting of beaſts, eſpecially of ſuch as are venemous; a puncture of the Nerves and Tendons, the wounds of the nervous parts and joynts, eſpecially in bodyes which are plethorike and repleate with ill humors, great wounds whereby the veſſels which carry life are much cut, whence an *aneuriſma*, and laſtly many other cauſes, which perturbe that harmony of the foure prime qualities which we formerly mentioned, and ſo inferre a Gangreene.

The perticular cauſes.

Cold cauſeth a Gangreene.

Chap. XII.

Of the Antecedent cauſes of a Gangreene.

How defluxions cauſe a Gangreene.

NOw the antecedent or internall and corporeall cauſes of a Gangreene, are plentifull and abundant defluxions of humors hot or cold, falling into any part. For ſeeing the faculty of the part is unapt and unable to ſuſtaine and governe ſuch plenty of humors, it comes to paſſe that the native heate of the part is ſuffocated and extinct for want of tranſpiration. For the Arteries are hereby ſo ſhut or pent up in a ſtrait, that they cannot performe their motions of contraction and dilatation, by which their native heate is preſerved and tempered. But then the Gangreene is chiefely uncureable when the influxe of humors

An uncureable Gangreene.

Lib. de tumor. præter natur.

Aph. 5. ſect. 6.

mours firſt takes hold of the bones, and inflammation hath its beginning from them. For in the opinion of **Galen**; all theſe kind of affects which may befall the fleſh, are alſo incident to the bones. Neyther onely a Phlegmon or inflammation, but alſo a rottenneſſe and corruption doth oft times firſt invade and beginne at the bones; for thus you may ſee many who are troubled with the Leproſie and French diſeaſe, to have their skinne and fleſh whole and faire to looke on, whoſe bones notwithſtanding are corrupt and rotten, and oft times are much decayed in their proper ſubſtance. This miſchiefe is cauſed by a venemous matter, whoſe occult quality wee can ſcarſe expreſſe by any other name than poyſon inwardly generated. Oft times alſo there is a certaine acrid and ſtinking filth generated in fleſh with a maligne and old ulcer, with which if the bones chance to bee moyſtned they become foule and at length mortified: of which this ſaying of **Hippocrates** is extant, Vlcers of a yeares continuance or longer, muſt neceſſarily foule the bone, and make the ſcarres hollow.

A Gangreene by effluxe of a cold matter.

Whither alſo belongs this ſaying of the ſame party; An *Eryſipelas* is ill in the laying bare of a bone. But this flowing venenate and gangrenous matter is ſomewhiles hot, as in peſtilent Carbuncles, which in the ſpace of foure and twenty houres by cauſing an *eſcharre*, bring the part to mortification: otherwhiles cold, as wee ſee it divers times happens in parts which are poſſeſt with a Gangreene, no paine, tumor, blackneſſe, nor any other precedent ſigne of a Gangreene going before. For *Iohn de Vigo* ſaith, that happened to a certaine gentlewoman of *Genoa* under his cure.

A notable Hiſtory.

I remember the ſame happened to a certaine man in *Paris*, who ſupping merrily and without any ſenſe of paine, went to bed, and ſuddainly on the night time a Gangreene ſeazed on both his legges, cauſed a mortification without tumor, without inflammation; onely his legges were in ſome places ſpred over with livid, blacke and greene ſpots, the reſt of the ſubſtance retaining his native colour; yet the ſence of theſe parts was quite dead, they felt cold to the touch, and if you thruſt your lancet into the skinne no blood came forth.

A Councell of Phyſitions being called, they thought good to cut the skinne, and fleſh lying under it, with many deepe ſcarifications; which when I had done, there came forth a little blacke, thicke and as it were congealed blood; wherefore this remedy as alſo diverſe other, prooved to no purpoſe, for in concluſion a blackiſh colour comming into his face, and the reſt of his body, he dyed franticke. I leave it to the Readers judgement, whether ſo ſpeedy, and ſuddainly cruell a miſchiefe could proceede from any other than a venenate matter; yet the hurt of this venenate matter is not peculiar, or by its ſelfe.

Simple cold may cauſe a Gangreene.

For oft times the force of cold, whether of the encompaſſing ayre, or the too immoderate uſe of Narcoticke medicines, is ſo great, that in a few houres it takes away life from ſome of the members, and diverſe times from the whole body, as we may learne by their example, who travell in great ſnowes, and over mountaines congealed, and horrid with froſt & yce. Hence alſo is the extinction of the native heate and the ſpirits reſiding in the part, and the ſhutting forth of that which is ſent by nature to ayde or defend it. For when as the part is bound with rigide cold, and as it were frozen, they cannot get nor enter therein. Neither if they ſhould enter into the part, can they ſtay long there, becauſe they can there finde no fit habitation, the whole frame and government of nature being ſpoyled, and the harmony of the foure prime qualities deſtroyed, by the offenſive dominion of predominant cold their enimy. whereby it commeth to paſſe, that flying back from whence they firſt came, they leave the part deſtitute and deprived of the benefit of nouriſhment, life, ſenſe and motion.

A Hiſtory.

A certaine Briton an Hoſtler in *Paris*, having drunke ſoundly after ſupper, caſt himſelfe upon a bed; the cold ayre comming in at a window left open, ſo tooke hold upon one of his legges, that when he waked forth of his ſleepe, he could neither ſtand nor goe. Wherefore thinking onely that his leg was numbe, they made him ſtand to the fire; but putting it very nigh, he burnt the ſole of his foote without any ſenſe of paine, ſome fingers thickneſſe, for a mortification had already poſſeſſed more than halfe his legge. Wherefore after he was carried to the Hoſpitall, the Chirurgion who belonged thereto, endeavoured by cutting away of the mortified legge to deliver the reſt of the body from imminent death; but it proved in vaine; for the mortification taking hold upon the upper parts, he dyed within three dayes, with thoubleſome belching and hicketting, raving, cold ſweate, and often ſwounding. Verily all that ſame winter, the cold was ſo vehement that many in the Hoſpitall of *Paris* loſt the wings or ſides of their noſe-thrills, ſeazed upon by a mortification without any putrefaction.

What parts are uſually taken by a Gangreene occaſioned by cold.

But you muſt note, that the Gangreene which is cauſed by cold, doth firſt and principally ſeaze upon the parts moſt diſtant from the heart, the fountaine of heate, to wit, the feete and legges; as alſo ſuch as are cold by nature, as griſtly parts, ſuch as the noſe and eares.

Chap. XIII.

Of the ſignes of a Gangreene.

Sect. 2. lib. de fractur.

THe ſignes of a Gangreene which inflammation or a phlegmon hath cauſed, are paine and pulſation without manifeſt cauſe, the ſudden changing of the fyery and red colour into a livid or blacke, as *Hippocrates* ſhewes where hee ſpeakes of the Gangreene of a broken heele.

What a pulſificke paine is.

I would have you here to underſtand the pulſificke paine not onely to be that which is cauſed by the quicker motion of the Arteries, but that heavy and pricking which the contention of the unaturall heate doth produce by raiſing a thicke cloud of vapours from theſe humours which the Gangreene ſets upon.

Signes of a Gangreene proceeding of cold.

The ſignes of a Gangreene cauſed by cold, are, if ſuddenly a ſharpe pricking and burning paine aſſaileth the part; for *penetrabile frigus adurit* (*i*) peircing cold doth burne: if a ſhining redneſſe as if you had handled ſnow, preſently turne into a livid colour; if in ſtead of the accidentall heate which was in the part, preſently cold and numbeneſſe ſhall poſſeſſe it, as if it were ſhooke with a quartain feaver. Such cold if it ſhall proceede ſo farre as to extinguiſh the native heate, bringeth a mortification upon the Gangreene; alſo oft times convulſions and violent ſhaking of the whole body, wondrous troubleſome to the braine and the fountaines of life.

Signes of Gangreenes proceeding from ſtrait bandages, or ligatures, &c.

But you ſhall know Gangreenes cauſed by too ſtreight bandages, by fracture, luxation, and contuſion, by the hardneſſe which the attraction and flowing downe of the humors hath cauſed; little pimples or bliſters ſpreading or riſing upon the ſkinne by reaſon of the great heate, as in a combuſtion; by the weight of the part occaſioned through the defect of the ſpirits not now ſuſtaining the burden of the member; and laſtly from this, the preſſing of your finger upon the part, it will leave the print thereof as in an *œdema*, and alſo from this, that the ſkinne commeth from the fleſh without any manifeſt cauſe.

Signes of a Gangreene occaſioned by a bite, puncture, &c.

Now you ſhall know Gangreenes ariſing from a bite, puncture, *aneuriſma*, or wound in plethoricke and ill bodies, and in a part indued with moſt exquiſite ſence, almoſt by the ſame ſignes as that which was cauſed by inflammation.

For by theſe and the like cauſes, there is a farre greater defluxion and attraction of the humors than is fit, when the perſpiration being intercepted and the paſſages ſtopt, the native heate is oppreſſed and ſuffocated. But this I would admoniſh the young Chirurgion, that when by the forementioned ſignes hee ſhall finde the Gangreene preſent, that hee doe not deferre the amputation for that hee findes ſome ſenſe, or ſmall motion yet reſiding in the part.

For oft times the affected parts are in this caſe mooved not by the motion of the whole muſcle, but onely by meanes, that the head of the muſcle is not yet taken with the Gangreene: with mooving it ſelfe by its owne ſtrength, alſo mooves its proper and continued tendon and taile though dead already; wherefore it is ill to make any delay in ſuch cauſes.

CHAP. XIIII.

Of the Prognoſtickes in Gangreenes.

HAving given you the ſignes and cauſes to know a Gangreene; it is fit wee alſo give you the prognoſticke. The fearceneſſe and malignity thereof is ſo great, that unleſſe it be moſt ſpeedily withſtood the part it ſelfe will dye, and alſo take hold of the neighbouring parts by the contagion of its mortification: which hath beene the cauſe that a Gangreene by many hath beene termed an *Eſthiomenos.* For ſuch corruption creepes out like poyſon, and like fire eates gnawes and deſtroyes all the neighbouring parts, untill it hath ſpred over the whole body. For as *Hippocrates* writes, *Lib. de vulner. capitis*; *Mortui & viventis nulla eſt proportio* (*i*) There is no proportion betweene the dead and living. Wherefore it is fit preſently to ſeparate the dead from the living; for unleſſe that be done, the living will dye, by the contagion of the dead. In ſuch as are at the point of death a cold ſweat flowes over all their bodyes: they are troubled with ravings, and watchings, belchings, and hicketing moleſt them; and often ſwoundings invade them, by reaſon of the vapours abundantly and continually rayſed from the corruption of the humors and fleſh, and ſo carryed to the bowells and principall parts, by the Veines, Nerves, and Arteries. Wherefore when you have foretold theſe things to the friends of the patient; then make haſte to fall to your worke.

Why a Gangreene is called *Eſthiomenos.*

The quicke impatient of the dead.

CHAP. XV.

Of the generall cure of a Gangreene.

THe Indications of curing Gangreenes are to be drawne from their differences, for the cure muſt bee diverſely inſtituted according to the eſſence and magnitude. For ſome Gangreenes poſſeſſe the whole member; others onely ſome portion thereof; ſome are deepe; otherſome ſuperficiall onely. Alſo you muſt have regard to the temper of the body. For ſoft and delicate bodyes, as of children, women, Eunuches, and idle perſons, require much milder medicines, than thoſe who by nature and cuſtome, or vocation of life, are more ſtrong and hardy, ſuch as husbandmen, labourers, marriners, huntſmen, porters, and men of the like nature who live ſparingly and hardly. Neither muſt you have reſpect to the body in generall, but alſo to the parts affected; for the fleſhy and muſculous parts, are different from the ſolide, as the Nerves and joynts, or more ſolide, as the *Vertebræ.* Now the hot and moyſt parts, as the Privities, mouth, wombe, and fundament, are eaſilyer and ſooner taken hold of by putrifaction; wherefore we muſt uſe more ſpeedy meanes to helpe them. Wherefore if the Gangreene be cheefely occaſioned from an internall cauſe, he muſt have a dyet preſcribed for the decent and fitting uſe of the ſixe things not naturall. If the body be plethoricke, or full of ill humors; you muſt purge, or let blood by the advice of a Phyſition. Againſt the aſcending up of vapours to the noble parts, the heart muſt cheefely be ſtrengthened with Treacle diſſolved in Sorrell, or *Carduus* water; with a bole of Mithridate, the conſerves of Roſes & Bugloſſe; and with Opiates made for the preſent purpoſe according to Art; this following Apozeme ſhall be outwardly applyed to the region of the heart. ℞. *aquæ roſar. & nenuphar. an.* ℥iiij. *aceti ſcillitici* ℥j. *corallorum, ſantalorum alborum & rubrorum, roſar. rub. in pulver. radactarum, & ſpodij, an.* ʒj. *mithrid. & theriacæ, an.* ʒiiß.

Various Indications of curing of a Gangreene.

What parts ſooneſt taken hold of by a Gangreene.

A cordiall Epithema.

ʒijß. *trochiſcorum de Caphura*, ʒij. *flor. cordial. in pollin. redactarum, p.ij croci* ʒj. *ex omnibus in pollinem redactis, fiat epithema.* Which may be applyed upon the region of the heart with a ſcarlet clot or ſpunge. Theſe are uſually ſuch as happen in the cure of every Gangreene.

Chap. XVI.

Of the particular cure of a Gangreene:

The cure of a Gangreene made by inflammation.

The deſcription of an *Egyptiacum.*

Aſtrigents that may be uſed in cure of a Gangreene.

THe cure of a Gangreene, cauſed by the too plentifull and violent defluxion of humors ſuffocating the native heate, by reaſon of great Plegmons, is performed by evacuating and drying up the humors, which putrifie by delay and collection in the part. For this purpoſe ſcarifications and inciſions, great, indifferent, ſmall, deepe and ſuperficiary according to the condition of the Gangreene, are much commended; that ſo the burdened part may enjoy the benefit of perſpiration; and the contained humors, of difflation, or evacuation of their ſooty excrements. Let inciſions be made when the affect is great, deepe in, and neere to mortification. But ſcarifications may be uſed when the part firſt begins to putrefie; for the greatneſſe of the remedy muſt anſwere in proportion to that of the diſeaſe. Wherefore if it penetrate to the bones, it will bee fit, to cut the skin and fleſh with many and deepe inciſions, with an inciſion knife made for that purpoſe; yet take heede of cutting the larger nerves and veſſels, unleſſe they be wholy putrified, for if they be not yet putrified, you ſhall make your inciſions in the ſpaces betweene them; if the Gangreene be leſſe, we muſt reſt ſatisfied with onely ſcarifying it. When the ſcarifications and inciſions are made, we muſt ſuffer much blood to flow forth, that ſo the conjunct matter may bee evacuated. Then muſt we apply and put upon it ſuch medicines as may by heating, drying, reſolving, clenſing and opening, amend and correct the putrefaction, and by peircing to the bottome may have power to overcome the virulencie already impact in the part. For this purpoſe Lotions made of the lye of the Aſhes of fig-tree or Oake wherein Lupines have bin throughly boyled are good. Or you may with leſſe trouble make a medicine with ſalt water, wherein you may diſſolve Aloes and *Ægyptiacum*, adding in the concluſion a little *Aqua vitæ*; for *aqua vitæ* and calcined vitrioll are ſingular medicines for a Gangreene. Or, ℞. *aceti opimi* ℔.j. *mel. roſ.* ℥iiij. *ſyrup. acetoſi* ℥iij. *ſalis com.* ℥v. *bulliant ſimul, adde aq. vitæ.* ℔ ſ. Let the part be frequently waſhed with this medicine, for it hath much force to repreſſe Gangreenes. After your Lotion, lay *Ægyptiacum* for a Liniment and put it into the inciſions; for there is no medicine, more powerfull againſt putrefaction, for by cauſing an *Eſchar*, it ſeparates the putride fleſh from the ſound. But we muſt not in this kinde of affect expect that the putride fleſh may of it ſelfe fall from the ſound; but rather cut off with your inciſion knife or ſiſſers, whatſoever thereof you can, & then put to it *Egyptiacum* as oft as neede ſhall require. The knowledge hereof may be acquired from the colour, ſmell, and ſenſibleneſſe of the fleſh its ſelfe. The deſcription of the *Egyptiacum*, whoſe wondrous effects I have often tryed in theſe cauſes, is this. ℞. *floris æris, aluminis roch. mellis com. an.* ℥iij. *aceti acerrimi* ℥v. *ſalis com.* ℥j. *vitrioli rom.* ℥ß. *ſublimati pul.* ʒij *bulliant omnia ſimul ad ignem, fiat unguent.* If the force of the putrefaction in the part be not ſo great, a weaker *Ægyptiacum* may ſerve. When you have put in the *Ægyptiacum*, then preſently lay the following Cataplaſme thereupon. For it hinders putrefaction, reſolves, cleanſes & dryes up the virulent *ſanies*, and by the dry ſubtlety of the parts penetrates into the member, ſtrengthens it, and aſſwages the paine. ℞. *farin. fabar. hordei, orobi, lent. lupin. an.* ℔ ſ. *ſal. com. mellis roſat. an.* ℥iiij. *ſucci abſinth. marrub. an.* ℥iiß. *aloes, maſtiches, myrrhæ, & aqua vit. an.* ℥ij, *oxymelitis ſimpl. quantum ſufficit; fiat Cataplaſma molle ſecundum artem;* Somewhat higher than the part affected, apply this following aſtringent, or defenſitive, to hinder the flowing down of the humors into the part, and the riſing up of the vapours from the putride part into the whole body. ℞. *olei roſati, & myrtill. an* ℥4. *ſucci plantag. ſolani, ſempervivi, an.* ℥ij. *album ovorum* 5. *boli armeni, terræ ſigillatæ ſubtiliter pulveriſatorum, an.* ℥j. *oxycrati quantum ſufficit, miſce ad uſum dictum.*

But theſe medicines muſt be often renewed. If the greeſe be ſo ſtubborne, that it will not yeeld to the deſcribed remedies, wee muſt come to ſtronger, to wit, Cauteries, after whoſe application, *Galen* bids to put upon it the juice of a Leeke with ſalt beaten and diſſolved therewith, for that this medicine hath a peircing and drying faculty, and conſequently to hinder putrifaction. But if you prevaile nothing with Cauteries, then muſt you come to the laſt remedy and refuge, that is, the amputation of the part; For according to *Hippocrates*, to extreame diſeaſes exquiſitly extreame remedies are beſt to be applyed. Yet firſt be certaine of the mortification of the part; for it is no little or ſmall matter to cut off a member without a cauſe.

Gal.2.ad Glauconem.

Aphor.6.ſect. 11.

Therefore I have thought it fit to ſet downe the ſignes, whereby you may know a perfect and abſolute mortification.

CHAP. XVII.

The ſignes of a perfect Necroſis *or Mortification.*

YOu ſhall certainly know that a Gangreene is turned into a Sphacell, or mortification, and that the part is wholly and throughly dead, if it looke of a blacke colour, and bee colder than ſtone to your touch, the cauſe of which coldneſſe is not occaſioned by the frigiditie of the aire; if there bee a great ſoftneſſe of the part, ſo that if you preſſe it with your finger it riſes not againe, but retaines the print of the impreſſion. If the skinne come from the fleſh lying under it; if ſo great and ſtrong a ſmell exhale (eſpecially in an ulcerated Sphacell) that the ſtanders by cannot endure or ſuffer it; if a ſanious moiſture, viſcide, greene or blackiſh flow from thence; if it bee quite deſtitute of ſenſe and motion, whether it be pulled, beaten, cruſhed, pricked, burnt, or cut off. Here I muſt admoniſh the young Chirurgion, that hee be not deceived concerning the loſſe or privation of the ſenſe of the part.

For I know very many deceived as thus; the patients pricked on that part would ſay they felt much paine there. But that feeling is oft deceiptfull, as that which proceeds rather from the ſtrong apprehenſion of great paine which formerly reigned in the part, than from any facultie of feeling as yet remaining. A moſt cleare and manifeſt argument of this falſe and deceitful ſenſe appeares after the amputation of the member; for a long while after they will complaine of the part which is cut away.

A note concerning the unſenſiblenes of the part.

Verily it is a thing wondrous ſtrange and prodigious, and which will ſcarſe be credited, unleſſe by ſuch as have ſeene with their eyes, and heard with their eares the patients who have many moneths after the cutting away of the Legge, grievouſly complained that they yet felt exceeding great paine of that Leg ſo cut of. Wherefore have a ſpeciall care leaſt this hinder your intended amputation, a thing pittifull, yet abſolutely neceſſary for to preſerve the life of the patient and all the reſt of his body, by cutting away of that member which hath all the ſignes of a Sphacell and perfect mortification; for otherwiſe the neglected fire will in a moment ſpread over all the body, and take away all hope of remedy; for thus *Hippocrates* wiſheth: That Sections, Vſtions, and Terebrations muſt bee performed as ſoone as neede requires.

A wondrous ſymptome.

Sect.7 Lib. 6. Epidem.

CHAP. XVIII.

Where Amputation muſt be made.

IT is not ſufficient to know that Amputation is neceſſary; but alſo you muſt learne in what place of the dead part, it muſt bee done, and herein the wiſedome and judgement of the Chirurgion is moſt apparent. Art bids

The controverſy decided.

to take hold of the quicke, and to cut off the member in the ſound fleſh; but the ſame art wiſheth us, to preſerve whole that which is ſound, as much as in us lies. I will ſhew thee by a familiar example how thou maiſt carry thy ſelfe in theſe difficulties. Let us ſuppoſe, that the foote is mortified even to the anckle; here you muſt attentively marke in what place you muſt cut it off. For unleſſe you take hold of the quicke fleſh in the amputation, or if you leave any putrefaction, you profit nothing by amputation, for it will creepe and ſpread over the reſt of the body. It befits Phyſicke ordained for the preſervation of mankind, to defend from the iron or inſtrument and all manner of injurie, that which enjoyes life and health. Wherefore you ſhall cut off as little of that which is ſound as you poſſibly can; yet ſo that you rather cut away that which is quicke, than leave behind any thing that is periſhed, according to the advice of *Celſus*. Yet oft times the commodity of the action of the reſt of the part, and as it were a certaine ornament thereof, changes this counſell. For if you take theſe two things into your conſideration they will induce you in this propounded caſe and example, to cut off the Legge ſome five fingers breadth under the knee. For ſo the patient may more fitly uſe the reſt of his Legge and with leſſe trouble, that is, he may the better goe on a woodden Legge; for otherwiſe, if according to the common rules of Art, you cut it off cloſe to that which is periſhed, the patient will be forced with trouble to uſe three Legges in ſtead of two.

Lib. 7. Cap: 33.

An obſervable Hiſtory.

For I ſo knew Captaine *Francis Clerke*, when as his foote was ſtrucken off with an iron bullet ſhot forth of a man of-warre, and afterwards recovered and healed up, hee was much troubled and wearied with the heavy and unprofitable burden of the reſt of his Legge, wherefore though whole and ſound he cauſed the reſt thereof to bee cut off, ſome five fingers breadth below his knee; and verily hee uſeth it with much more eaſe and facility than before in performance of any motion. Wee muſt doe otherwiſe if any ſuch thing happen in the Arme; that is, you muſt cut off as little of the ſound part as you can. For the actions of the Legges much differ from theſe of the armes, and chiefly in this that the body reſts not, neither is carried upon the armes, as it is upon the feete and Legges.

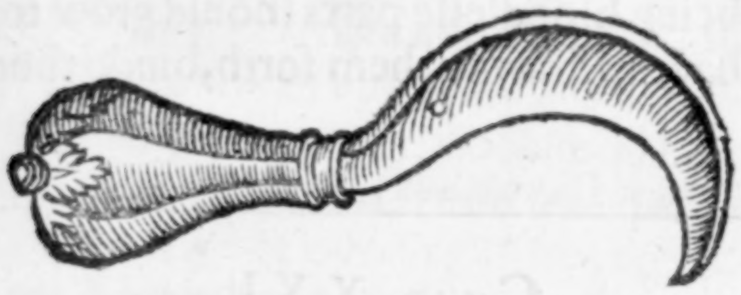
Chap. XIX.

How the ſection or amputation muſt be performed.

THe firſt care muſt be of the patients ſtrength, wherefore let him be nouriſhed with meats of good nutriment, eaſie digeſtion, and ſuch as generate many ſpirits; as with the yolkes of Egges, and bread toſted and dipped in Sacke or Muskedine. Then let him bee placed, as is fit, and drawing the muſcles upwards toward the ſound parts, let them be tyed with a ſtraite ligature a little above that place of the member which is to be cut off, with a ſtrong and broad fillet like that which women uſually bind up their haire withall; This ligature hath a threefold uſe; the firſt is, that it hold the muſcles drawne up together with the skin, ſo that retiring backe preſently after the performance of the worke, they may cover the ends of the cut bones, and ſerve them in ſtead of boulſters or pillowes when they are healed up, and ſo ſuffer with leſſe paine the compreſſion in ſuſteining the reſt of the body; beſides alſo by this meanes the wounds are the ſooner healed and cicatrized; for by how much more fleſh or skinne is left upon the ends of the bones, by ſo much they are the ſooner healed and cicatrized. The ſecond is, for that it prohibites the fluxe of blood by preſſing and ſhutting up the veines and arteries. The third is, for that it much dulls the ſenſe of the part by ſtupefying it; the animall ſpirits by the ſtraite compreſſion being hindred from paſſing in by the Nerves: Wherefore when you have made your ligature, cut the fleſh even to the bone with a ſharpe and well cutting inciſion knife, or with a crooked knife, ſuch as is here expreſſed.

The Ligature of the part.

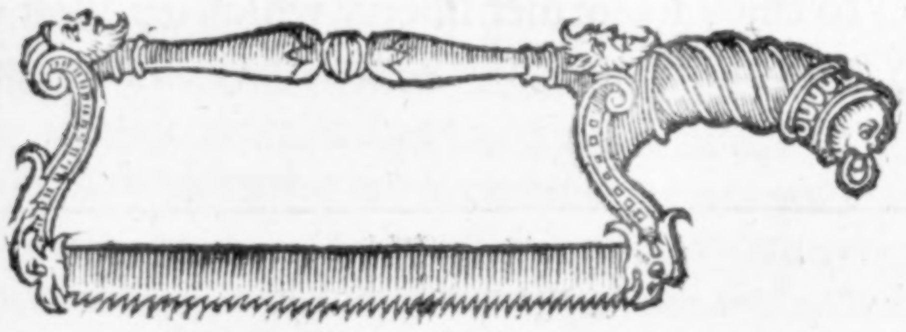
A crooked knife fit for diſmembring; or a diſmembring knife.



Now you muſt note, that there uſually lyes betweene the bones, a portion of certaine muſcles, which you cannot eaſily cut with a large inciſion or diſmembring knife; wherefore you muſt carefully divide it and ſeparate it wholly from the bone, with an inſtrument made neately like a crooked inciſion knife. I thought good to advertiſe thee hereof; for if thou ſhouldeſt leave any thing beſides the bone to bee divided by the ſaw, you would put the patient to exceſſive paine in the performance thereof; for ſoft things as fleſh tendons and membranes, cannot be eaſily cut with a ſaw. Therefore when you ſhall come to the bared bone, all the other parts being wholly cut aſunder and divided, you ſhall nimbly divide it with a little ſaw about ſome foote and three inches long, and that as neare to the ſound fleſh as you can. And then you muſt ſmooth the front of the bone which the ſaw hath made rough.

A caution to be obſerved.

The Figure of ſuch a Saw.

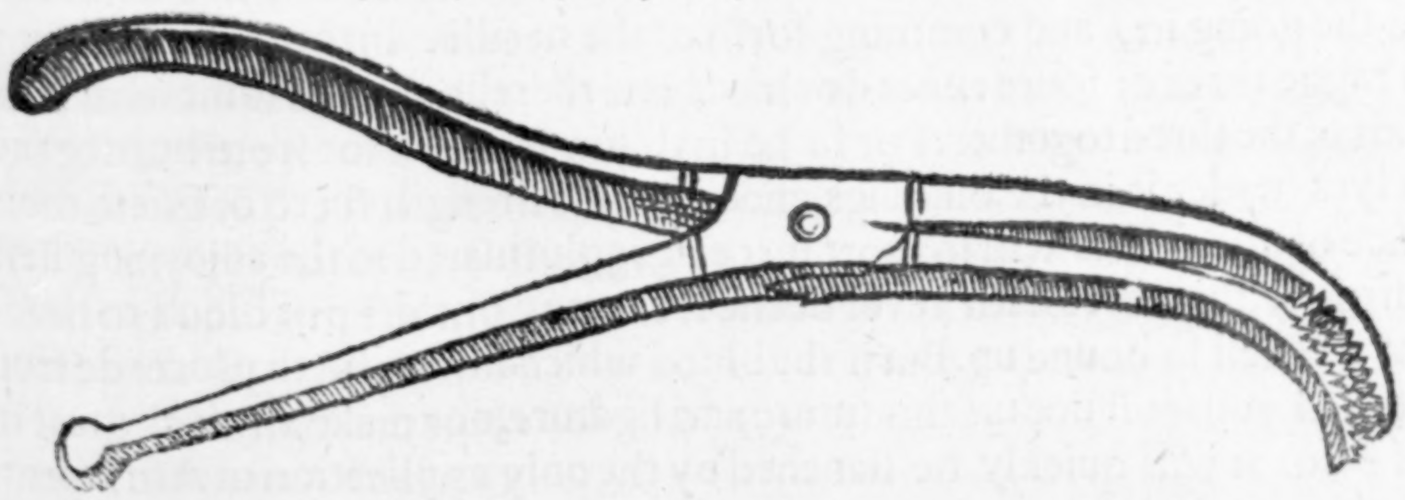


Chap. XX.

How to ſtanch the bleeding when the member is taken off.

When you have cut off and taken away the member, let it bleed a little according to the ſtrength of the patient, that ſo the reſt of the part may afterwards be leſſe obnoxious to inflammation and other ſymptomes; Then let the Veines and Arteries be bound up as ſpeedily and ſtreightly as you can; that ſo the courſe of the flowing blood may bee ſtopped and wholly ſtayed. Which may be done by taking hold of the veſſells with your Crowes beake, whereof this is the figure.

The Crowes beake fit for to draw the veſſells forth of the fleſh wherein they lye hid, that ſo they may be tyed or bound faſt.



How to draw forth the veſſells and binde them.

The ends of the veſſells lying hid in the fleſh, muſt be taken hold of & drawn with this inſtrument forth of the muſcles whereinto they preſently after the amputation withdrew themſelves, as all parts are ſtill uſed to withdraw themſelves towards their originalls. In performance of this worke, you neede take no great care, if you together with the veſſells comprehend ſome portion of the neighbouring parts,as of the fleſh, for hereof will enſue no harme; but the veſſells will ſo bee conſolidated with the more eaſe, than if they being bloodleſſe parts ſhould grow together by themſelves. To conclude,when you have ſo drawne them forth,binde them with a ſtrong double thred.

CHAP. XXI.

How after the blood is ſtanched, you muſt dreſſe the wounded member.

How the lips of the diſmembred part are to be joyned together.

WHen you have tyed the Veſſells, looſe you Ligature which you made above the place of amputation; then draw together the lippes of the wound with foure ſtitches made acroſſe, having taken good hold of the fleſh; for thus you ſhall draw over the bones that part of the skinne and cut muſcles drawne upwards before the amputation, and cover them as cloſe as you can, that ſo the ayre may the leſſe come at them, and that ſo the wound may bee the more ſpeedily agglutinated. But when wee ſay, draw together the lippes of the wound with foure ſtitches, you muſt not ſo underſtand it, as that you muſt endeavour, to draw them ſo cloſe as to touch each other, for that is impoſſible; for the ſtitches would ſooner breake out,and ſo the part would lye bare. Wherefore it will be ſufficient to draw them indifferent cloſe together,that ſo you may ſuffer the skinne and fleſh thereunder to enjoy its former liberty which it poſſeſt before the drawing up, and ſo in fine by natures aſſiſtance, the wound may be the more eaſily agglutinated.

CHAP. XXII.

How you muſt ſtoppe the bleeding, if any of the bound up veſſels chance to get looſe.

THe buſineſſe hitherto being performed as we ſaid, if peradventure it happen that any bandage of any of the veſſels be unlooſed, then muſt you againe binde the member with that kinde of Ligature which you did before the amputation thereof. Or elſe,which is better, more eaſily and leſſe painefull, let your ſervant taking hold of the member with both his hands,preſſing his fingers ſtrait, ſtoppe the paſſage of the looſed veſſell, for ſo hee may ſtanch the bleeding. Then let the worke-maſter take a needle ſome foure fingers long, ſquare, and having ſharpe edges, drawing after it a three or foure doubled ſtrong thred. With this let him binde the veſſell after the following manner. Let him thruſt his needle on the outſide into the fleſh, ſome halfe fingers breadth from the looſed veſſell untill he come to the end thereof, then let him put it about it,and bring it backe againe, but ſo that there be no more than the ſpace of a fingers bredth betweene the going in, and comming forth of the needle. In this ſpace let him put a linnen ragge three or foure times doubled, and thereupon bind ſomewhat ſtraite the two ends of the thred together. For ſo he ſhall hinder the knot from hurting the fleſh which lyes under it in the bindings,and alſo adde ſtrength thereto. For ſo the bound up orifice of the veſſell will in ſhort ſpace be agglutinated to the adjoyning fleſh,and that ſo firmely,that there hath never beene ſeene,any one drop of blood to have flowed from a veſſell ſo bound up. But if the blood which flowes forth proceede from any ſmall veſſell,you muſt not uſe this ſuture and ligature,nor make any ſuch great matter thereof; for it will quickly be ſtanched by the only application of Aſtringents preſently to be mentioned.

The Heamorrhagie of ſmall veſſels is not to be regarded

CHAP.

CHAP. XXIII.

How to performe the reſidue of the cure of the amputated member.

NOw muſt we ſhew what medicines are fitting to be applyed after the amputation of a member; which are Emplaſticks, as theſe which exceedingly conduce to greene wounds. As ℞.*boli arm.* ℥iiij *farin. vol.* ℥iij. *picis, reſinæ, an.* ℥ij.*pulveriſentur omnia ſubtiliſſ. & ſimul mixtis fiat pulvis*; herewith let the wound bee ſtrewed, and lay thereupon dry Lint; but let the following repercuſſive or defenſitive be applyed to the member.

An emplaſtick medicine.

℞.*Album ovorum* vj.*boli arm.ſang.drac.gypſi,terræ ſigill. aloës, maſtiches, gallar. combuſt.an.* ℥ij.*in pollinem redigantur omnia, & bene agitentur, addendo olei roſarum & myrtil.an.* ℥j.*fiat defenſitivum ad formam mellis.* This ointment muſt bee applyed upon ſtoopes dipped in Oxycrate, and that ſo that it may not onely cover the cut member, but alſo be ſpread further and cover the neighbouring parts; as when the Legge is cut off, it muſt bee laid upon the joynt, and ſpread higher than the knee, ſome foure fingers upon the thigh; for it hath not onely a repercuſſive facultie, but it alſo ſtrengthens the part, hinders defluxion by tempering the blood, aſwaging paine, and hindring inflammation. It will alſo be good to moiſten your double clothes and bandages in Oxycrate; then muſt you place the member in an indifferent poſture upon a pillow ſtuffed with oaten huskes or chaffe, Stagges haire, or wheate branne. It muſt not be ſtirred after the firſt dreſſing (unleſſe great neceſſity urge) for foure dayes in winter, but ſomewhat ſooner in ſummer. For the ligatures wherewith the veſſells are bound, they muſt not be looſed, or otherwiſe taken away, before the mouthes of the veſſells are covered with their glue or fleſh, leſt by too much haſte you cauſe a new flux of blood. This agglutination will be performed by applying refrigerating, aſtringent, and emplaſticke medicines, ſuch as this following powder.

A repercuſſive.

How to place the member and how often to dreſſe it.

℞.*boli arm.farin.hord.picis,reſ.gypſi, an* ℥iiij. *Aloës, nucum cup.cort.granat.an.* ℥j. *incorporentur omnia ſimul, fiat pulvis ſubtilis*: herewith let the whole ulcer be ſtrewed over for three or foure dayes ſpace; which being ended, let onely the ſeates of the veſſells be poudred therewith, and that for eight or ten dayes, ſo that wee neede no further doubt of the agglutination of the veſſells. In the meane ſpace let the digeſtive be applyed to the reſt of the Vlcer untill it bee come to ſuppuration; for then you ſhall give over your digeſtive, and betake you to deterſive and mundificative medicines: As

An emplaſticke pouder.

℞.*terebinth.ven. lotæ in aqua vitæ* ℥vj. *mellis roſ. colati* ℥iiij. *ſucci plantag. Apij, centaur, minoris, an.* ℥ij. *bulliant omnia ſimul uſque ad conſumptionem ſuccorum: auferantur ab igne, addendo farinæ fab. & hord.an.* ℥j.*theriac.Gal.* ℥ß.*aloes, myrrhæ, ariſtoloch. an.* ℥iij.*croci* ℈j.*fiat mundificativum.*

Deterſives.

But ſeeing the caſe ſtands ſo that the Patients imagine they have their members yet entire, and yet doe complaine thereof (which I imagine to come to paſſe, for that, the cut nerves retire themſelves towards their originall, and thereby cauſe a paine like to convulſions; for as *Galen* writes in his booke, *De motu muſculorum*, That contraction is the true and proper action of a nerve and muſcle: and againe, extenſion is not ſo much an action as a motion:) now wee muſt indeavour to give remedy to this ſymptome. Which may be done by annointing the ſpine of the backe and all the affected part with the following Liniment, which is very powerfull againſt Convulſions, the Palſie, numneſſe, and all cold affects of the nervous bodies.

Why after diſmembring the patients complaine of paine as if the part were yet remaining on.

℞ *ſalviæ, chamæpytheos, majoranæ, roriſmar.menth.rutæ, lavendulæ, an.m.*j.*flor.chamæmel. melilot.ſummit.aneth.& hyperici, an.p.*ij.*baccarum lauri & juniperi an.* ℥ij.*radicis pyrethri* ʒij,*maſtic.aſſæ odorat.an.* ℥iß.*terebinth.venet* ℔.j.*olei lumbr.aneth.catell.an.* ℥vj.*olei terebinth.*

An ointment for the ſpine of the backe againſt all affects of the nerves.

binth. ℥iij. *axung. hum.* ℥ij. *croci* ʒj. *vini albi odoriferi lib.*j. *ceræ quantum ſufficit, contundenda contundantur.pulveriſanda pulveriſentur, deinde macerentur omnia in vino per noctem, poſtea coquantur cum oleis & axungia prædictis in vaſe duplici, fiat linimentum ſecundum artem, in fine adde aquæ vitæ* ℥iiij. Beſides, in dreſſing theſe wounds, the Chirurgion muſt uſe diligence to procure the falling away of the ends or ſcalls of the bones, which the ſaw and the appulſe of the aire never before comming hereto, have tainted; which may be done by applying to their ends actuall cauteries, that is, hot irons, in uſing of which you muſt have a ſpeciall care that you touch not the ſenſible parts with fire; neither muſt the bones themſelves bee forcibly pluckt off, but gently mooved by little and little, ſo that you ſhall thinke you and the patient have exceedingly well performed your parts if they fall away at the thirtyeth day after the Amputation. All theſe things being performed, you ſhall hinder the growth of proud fleſh with the cathæreticks, ſuch as are burnt vitrioll, the pouder of Mercurie, and other things, amongſt which is Alome burnt and poudered, which is excellent in theſe kind of wounds whether by its ſelfe or mixed with others. You ſhall uſe theſe and ſuch like, even unto the perfect agglutination and cicatrization of the wound, and you may of your ſelfe deviſe other things, ſuch as theſe, as occaſion ſhall offer its ſelfe.

How to procure the falling away of the ends of the bones.

Cathæreticks.

CHAP. XXIIII.

What juſt occaſion moved the Author to deviſe this new forme of remedy, to ſtanch the blood after the amputation of a member; and to forſake the common way uſed almoſt by all Chirurgions; which is, by application of actuall cauteries.

VErily I confeſſe, I formerly have uſed to ſtanch the bleeding of members after amputation, after another manner than that I have a little before mentioned. Whereof I am aſhamed, and agreived; But what ſhould I doe? I had obſerved my maiſters whoſe method I entended to follow, alwaies to doe the like; who thought themſelves ſingularly well appointed to ſtanch a flux of blood, when they were furniſhed with various ſtore of hot Irons and cauſticke medicines, which they would uſe to the diſmembred part, now one, then another, as they themſelves thought meete. Which thing cannot be ſpoken, or but thought upon without great horror, much leſſe acted. For this kinde of remedy could not but bring great and tormenting paine to the patient, ſeeing ſuch freſh wounds made in the quicke and ſound fleſh are endewed with exquiſite ſenſe. Neither can any cauſticke be applyed to nervous bodies, but that this horrid impreſſion of the fire will be preſently communicated to the inward parts, whence horrid ſymptomes enſue, and oft times death it ſelfe. And verily of ſuch as were burnt, the third part ſcarſe ever recovered, and that with much adoe, for that combuſt wounds difficultly come to cicatrization; for by this burning are cauſed cruell paines, whence a Feaver, Convulſion, and oft times other accidents worſe than theſe. Adde hereunto, that when the eſchar fell away, oft times a new hæmorrhagye enſued, for ſtanching whereof they were forced to uſe other cauſticke and burning Inſtruments. Neither did theſe good men know any other courſe; ſo by this repetition there was great loſſe and waſte made of the fleſhy and nervous ſubſtance of the part. Through which occaſion the bones were laid bare, whence many were out of hope of cicatrization, being forced for the remainder of their wretched life to carry about an ulcer upon that part which was diſmembred; which alſo tooke away the oportunitie of fitting or putting too of an artificiall legge or arme in ſtead of that which was taken off.

Hot Irons not to be uſed.

Wherefore I muſt earneſtly entreate all Chirurgions, that leaving this old, and too too cruell way of healing, they would embrace this new, which I thinke was taught mee by the ſpeciall favour of the ſacred Deitie; for I learnt it not of my maiſters, nor of any other, neither have I at any time found it uſed by any. Onely I have read in *Galen*, that there was no ſpeedier remedy for ſtanching of blood, than to bind the veſſels through which it flowed towards their rootes, to wit, the Liver and Heart.

Lib.5.Meth.

This precept of *Galen*, of binding and ſowing the Veines and Arteries in the new wounds, when as I thought it might be drawne to theſe which are made by the amputation of members, I attempted it in many; yet ſo that at firſt in my budding practiſe thereof, I alwayes had my cauteries and hot Irons in a readineſſe, that if any thing happened otherwiſe then I expected in this my new worke, I might fetch ſuccour from the ancient practice, untill at length confirmed by the happy experience of almoſt an infinite number of particulars, I bid eternally adieu, to all hot Irons and cauteries which were commonly uſed in this worke. And I thinke it fit that Chirurgions doe the like. For antiquity and cuſtome in ſuch things as are performed by Art, ought not to have any ſway, authority or place contrary to reaſon, as they oft times have in civill affaires; wherefore let no man ſay unto us, that the Ancients have alway done thus.

Chap. XXV.

The practice of the former precepts is declared, together with a memorable hiſtory of a certaine ſoldier, whoſe arme was taken off at the Elbow.

A Hiſtory:

I Thinke it fit to confirme by an example the preſcribed method of curing a Gangreene and Mortification. Whileſt I was Chirurgion to the Marſhall of *Montejan* at *Turin*, a certaine common ſouldier received a wound on his wreſt with a musket bullet, by which the Bones and tendons being much broken, and the nervous bodyes cruelly torne, there followed a Gangreen,&at length a mortification even to the Elbow; beſides alſo an inflammation ſeazed upon the middle part of his Cheſt, and there was as it were a certaine diſpoſition to a Gangreene, whereby it followed that he was painefully and dangerouſly troubled with belchings, hickettings, watchings, unquietneſſe and frequent ſwoundings, which occaſioned many Chirurgions to leave him as deſperate. But it ſo it fell out, that I orecome by his friends intreaty, undertooke the cure of this wretched perſon, deſtitute of all humane helpe. Wherefore knowing the mortification by its ſignes, I cut off the arme by the elbow as ſpeedily as I could, making firſt the ligature, whereof I made mention; I ſay I tooke it off not with a ſaw, but onely with an inciſion knife, cutting in ſunder the ligaments which held the bones together, becauſe the ſphacell was not paſſed the joynt of the Elbow. Neither ought this ſection to be accounted ſtrange, which is made in a joynt; for *Hippocrates* much commends it, and ſaith that it is eaſily healed, and that there is nothing to be feared therein beſides ſwounding, by reaſon of the paine cauſed by cutting the common tendons and ligaments. But ſuch inciſion being made, the former Ligature could not hinder, but much blood muſt flow from thence, by reaſon of the large veſſels that run that way. Wherefore I let the blood to flow plentifully ſo to diſburden the part, and ſo afterwards to free it from the danger and feare of inflammation and a Gangreene; then preſently I ſtanched the blood with an hot Iron, for as yet I knew no other courſe. Then gently looſing the Ligature I ſcarifie that part of the brawn of the Arme which was Gangreenated, with many and deepe inciſions, ſhunning and not touching the inner part, by reaſon of the multitude of the large veſſels and Nerves which runne that way; then I preſently applyed a cautery to ſome of the inciſions, both to ſtanch the bleeding, and draw forth the virulent *ſanies* which

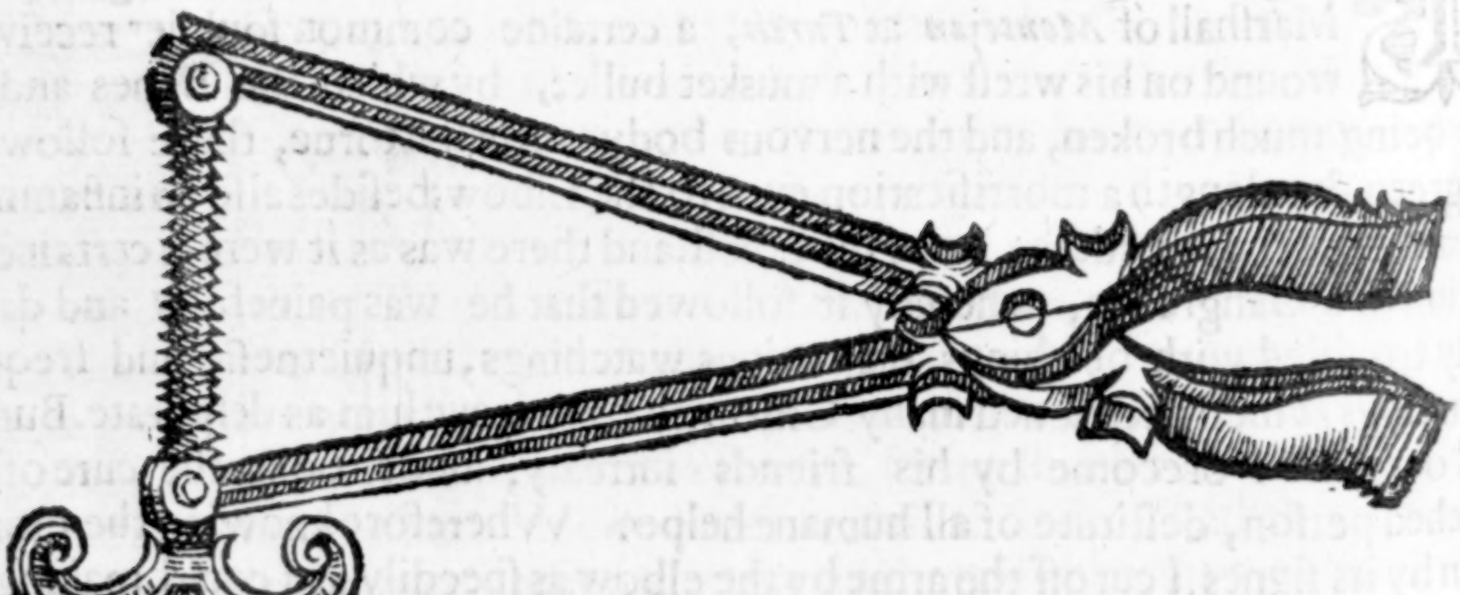
Diſmembring at a joynt.

Sect.4.lib. de Art.

which remained in the part. And then I aſſailed and overcame the ſpreading putrefaction by putting and applying the formerly preſcribed medicines; I uſed all ſorts of reſtrictive medicines, to ſtay the inflammation of the Cheſt; I alſo applyed Epithema's to the region of the heart, and gave him cordiall potions and boles, neither did I deſiſt from uſing them untill ſuch time as his belching, hicketting and ſwoundings had left him. Whileſt I more attentively intended theſe things, another miſcheife aſſailes my patient, to wit, Convulſions, and that not through any fault of him or me, but by the naughtineſſe of the place wherein hee lay, which was in a Barne every where full of chinkes and open on every ſide, and then alſo it was in the midſt of winter raging with froſt and ſnow and all ſorts of cold; neyther had he any fire or other thing neceſſary for preſervation of life, to leſſen theſe injuries of the Aire and place; Now his joints were contracted, his teeth ſet, and his mouth and face were drawne awry, when as I pittying his caſe made him to bee carried into the neighbouring Stable which ſmoaked with much horſe dung, and bringing in fire in two chafendiſhes, I preſently annointed his necke and all the ſpine of his backe, ſhunning the parts of the Cheſt, with liniments formerly deſcribed for convulſions; then ſtraight way I wrapped him in a warme linnen cloth, and buried him even to the necke in hot dung, putting a little freſh ſtraw about him; when hee had ſtayed there ſome three dayes, having at length a gentle ſcowring or flux of his belly, and plentifull ſweate, hee begun by little and little to open his mouth and teeth which before were ſet and cloſe ſhut. Having got by this meanes ſome opportunitie better to doe my buſineſſe, I opened his mouth as much as I pleaſed, by putting this following Inſtrument betweene his Teeth.

Burying in hot horſe dung helpes Convulſions,

A Dilater made for to open the mouth and Teeth by the meanes of a ſcrew in the end thereof.



Now drawing out the Inſtrument I kept his mouth open by putting in a willow ſticke on each ſide thereof, that ſo I might the more eaſily feede him with meats ſoone made, as with Cowes milke and reare egges, untill hee had recovered power to eate, the convulſion having left him. Hee by this meanes freed from the Convulſion, I then againe begun the cure of his arme, and with an actuall cautery ſeare the end of the bone, ſo to dry up the perpetuall affluxe of corrupt matter.

It is not altogether unworthy of your knowledge, that hee ſaid, how that hee was wondrouſly delighted by the application of ſuch actuall cauteries, a certaine tickling running the whole length of the arme by reaſon of the gentle diffuſion of the heate by applying the cauſticke; which ſame thing I have obſerved in many others; eſpecially in ſuch as lay upon the like occaſion in the Hoſpitall of *Paris*. After this cauterizing there fell away many and large ſcalles of the bone, the freer appulſe of the aire than was fit making much thereto; beſides when there was place for fomentation, with the decoction of red Roſe leaves, Wormewood, Sage, Bay leaves, flowers of Chamomile, Melilote, Dill; I ſo comforted the part that I alſo at the ſame time by the ſame meanes drew and tooke away the virulent *Sanies*, which firmely adhered to the fleſh and bones.

A fomentation for a Convulſion.

Laſtly, it came to paſſe, that by Gods aſſiſtance, theſe meanes I uſed, and my carefull diligence, he at length recovered. Wherefore I would admoniſh the young Chirurgion, that hee never account any ſo deſperate, as to give him for loſt, content to have let him goe with prognoſticks; for as an ancient Doctor writes; That as in Nature, ſo in diſeaſes there are alſo Monſters.

Monſters or miracles in diſeaſes.

The end of the Twelfth Booke.

OF VLCERS, FISTVLA'S, AND Hæmorrhoides.

THE THIRTEENTH BOOKE.

CHAP. I.

Of the nature, cauſes, and differences of Vlcers.

The diverſe acceptions of an Vlcer.

Sent.34.ſect. 3 lib. de fract.

Sect.1.prog.

What an Vlcer properly is.

Lib. de conſtit. Artis cap.6.

The internall cauſes.

The externall cauſes.

HAving already handled and treated of the nature, differences, cauſes, ſignes and cure of freſh and blood wounds, reaſon & order ſeeme to require that we now ſpeake of Vlcers;taking our beginning from the ambiguity of the name. For according to *Hippocrates*, the name of Vlcer moſt generally taken may ſignifie all or any ſolution of Continuity; In which ſenſe it is read, that all paine is an Vlcer. Generally, for a wound and Vlcer properly ſo called; as appeares by his Booke, *de Vlceribus*. Properly, as when hee ſaith, it is a ſigne of death when an Vlcer is dryed up through an *Atrophia*, or defect of nouriſhment. Wee have here determined to ſpeake of an Vlcer in this laſt and proper ſignification, And according thereto wee define an Vlcer to bee the ſolution of Continuity in a ſoft part, and that not bloody, but ſordide and unpure, flowing with quitture, *Sanies* or any ſuch like corruption, aſſociated with one or more affects againſt nature, which hinder the healing and agglutination thereof; or that we may give you it in fewer words according to *Galens* opinion; An ulcer is a ſolution of Continuity, cauſed by Eroſion. The cauſes of Vlcers are either internall or externall. The internall are through the default of humors peccant in quality rather than in quantity, or elſe in both, and ſo making eroſion in the ſkinne and ſofter parts by their acrimonie and malignitie; Now theſe things happen eyther by naughty and irregular diet, or by the ill diſpoſition of the entrailes, ſending forth and emptying into the habite of the body this their ill diſpoſure. The externall cauſes are, the exceſſe of cold ſeazing upon any part, eſpecially more remote from the fountaine of heate, whence followes paine, whereunto ſucceeds an attraction of humors and ſpirits into the part, and the corruption of theſe ſo drawne thither by reaſon of the debility or extinction of the native heate in that part, whence laſtly ulceration proceeds. In this number of externall cauſes may be ranged, a ſtroake, contuſion, the application of ſharpe and acrid medicines, as cauſticks, burnes; as alſo impure contagion, as appeares by the virulent vlcers acquired by the filthy copulation or too familiar converſation of ſuch as have the French diſeaſe. How many and what the differences of Vlcers are, you may ſee here deſcribed in this following Scheme.

A Table of the differences of Vlcers.

An Vlcer is an impure ſolution of continuity in a ſoft part, flowing with filth and matter or other corruption, whereof there are two chiefe differẽces, for one

- *Is ſimple and ſolitary without complication of any other affect againſt nature; and this varies in differences, either*
  - *Proper which are uſually drawne from three things, to wit*
    - *figur. whence one Vlcer is called*
      - *Round or circular.*
      - *Sinuous, and variouſly ſpread.*
      - *Right or oblique.*
      - *Cornered, as triangular.*
    - *Quantity, & that eyther according to their*
      - *Length; whence an Vlcer is long, ſhort, indifferent.*
      - *Breadth; whence an Vlcer is broad, narrow indifferent.*
      - *Profundity; whence an Vlcer is deepe, ſuperficiary, indifferent.*
    - *Equalitie or inequality, which conſiſts,*
      - *In thoſe differences of dimenſions whereof we laſt treated, I ſay in length, breadth and profundity, wherein they are either alike or of the ſame manner, or elſe unlike and ſo of a different manner.*
  - *Or common and accidentall, & theſe drawne, either*
    - *From their time; whence an Vlcer is tearmed new, old, of ſhort or long cure and duration.*
    - *From their appearance; whence one is called an apparent Vlcer; another a hidden and occult Vlcer.*
    - *From their manner of generation; as if it be made by a heavy, bruſing, cutting, pricking or corroding thing; whence a cut, torne and mixt Vlcer.*
    - *From their ſite; whence an Vlcer before, behind, above, below, in the head, taile, or belly of a Muſcle.*
    - *From that part it ſeazes upon, whence an vlcer in the fleſh and skin, or feeding upon the griſtles or bones, ſuch as theſe of the noſe, the palate of the mouth, and eares.*
    - *From other common accidents; whence a Telephian Vlcer; that is, ſuch an Vlcer as Telephus had. A Chironian, which needs the hand and art of Chiron. A Canckrous which reſembles a* Cancer.
- *Is compound and many and various wayes complicated, as*
  - *With the cauſe, whence an Vlcer*
    - *Is Cacochymicke, Catarrhoicke or venenate, that is, with a* Cachochymia *or Repletion of ill humors, a Catarrhe, or poiſon cheriſhes or feeds.*
  - *With the diſeaſe, as from*
    - *Diſtemper, whether ſimple or compound, whence an Vlcer is,*
      - *Hot.*
      - *Cold.*
      - *Dry.*
      - *Moiſt.*
      - *Mixt.*
    - *Swelling or Tumor, whence a … Vlcer.*
      - *Phlegmonous,*
      - *Eryſipelous,*
      - *Oedematous.*
      - *Scirrhous,*
      - *Cancrous.*
    - *Solution of continuitie, or any other diſcommoditie, whence a rough, callous, fiſtulous, cavernous, ſinuous Vlcer, with luxation, facture, &c.*
  - *With the Symptome, whence, A corroding, eating, painefull, ſordid and virulent Vlcer.*
  - *With the cauſe and diſeaſe,*
  - *With the cauſe and Symptome,*
  - *With the diſeaſe and Symptome,*
  - *With the cauſe, diſeaſe and Symptome.*
    - *Examples whereof may be taken from that we have formerly delivered.*

CHAP. II.

Of the ſignes of Vlcers.

The ſignes of a putrid Vlcer.

THere are various ſignes of Vlcers according to their differences. For it is the ſigne of a putride Vlcer, if it exhale a noyſome, grievous, ſtinking and carion-like vapour, together with filthy matter. An eating Vlcer is knowne by the eating in, hollowneſſe and wearing away of the part wherein it reſides, together with the adjoyning parts. A ſordide Vlcer may be knowne by the groſſeneſſe and viſcidity of the excrements it ſends forth, and by the looſe and ſpongy ſoftneſſe, or the cruſted inequality of the fleſh which growes over it. A cavernous Vlcer, by the ſtreghtneſſe of the orifice, and largeneſſe and deepeneſſe of the windings within. A fiſtulous Vlcer, if to the laſt mentioned ſignes there accrew a callous hardneſſe of the lips or ſides of the Vlcer. A cancrous Vlcer is horrible to behold with the lips turned backe, hard and ſwollne, flowing with virulent and ſtincking corruption, and ſometimes alſo with bloody matter, together with the ſwelling and lifting up of the adjacent veines. An untemperate, or as they terme it, a diſtempered Vlcer, is ſuch as is nouriſhed by ſome great diſtemper whether hot or cold, moiſt or dry, or compounded of theſe. An ill* natured or maligne Vlcer is knowne by the difficulty of curing and rebellious contumacy to remedies appointed according to art and reaſon. Wee know a catarrhous Vlcer, if the matter which feeds it flow to it from ſome *varices* thereunto adjoyning, or dilated, ſwollne and broken veines, or from ſome entraile, or from the whole body being ill affected. An Apoſtumatous Vlcer is perceived by the preſence of any tumor againſt nature, whoſe kind may be found out by ſight and handling. *Telephian* Vlcers, are ſuch as affected *Telephus*, and *Chironian* (in whoſe cure *Chiron* excelled) are Vlcers which may be knowne by their magnitude not much putride, and conſequently not ſending forth any ill ſmell, not eating, not tormenting with paine, but having their lips ſwollne and hard, and therefore ill to bee healed. For although they may bee ſometimes cicatrized, yet it being but ſlender may eaſily bee broken, and the Vlcer renewed. They are almoſt like an ulcerated *Cancer*, but that they are accompanied with ſwelling in the adjacent parts; they are alſo worſe than theſe which are termed *Cacoëthe*, that is, ill natured or maligne; whence it is that *Fernelius* thought they had a hidden cauſe of malignitie, beſides the common default of the humour, and that ſuch as can ſcarce bee driven away; ſuch commonly are left after the plague. Wherefore *Galen* thinkes ſuch to bee maligne as will not ſuppurate or yeeld any quitture.

Gal.cap.5.lib. 4.Meth.

** Vlcus cacoethes.*

Com.ad aphor. 22.ſect.5.

CHAP. III.

Of the prognoſticks of Vlcers.

Aph.45.ſect.6.

THe bone muſt neceſſarily ſcaill, and hollow ſcarres be left by maligne Vlcers of a yeares continuance or longer, and rebellious to medicines fitly applyed. The bone muſt ſcaill by reaſon of the continuall affluxe, and wearing by the acrimony of the humour, which looſes the compoſure and glue by which the parts thereof are joyned together. But the ſcars muſt become hollow, for that the bone (whence all the fleſh takes its firſt originall) or ſome portion thereof, being taken from under the fleſh, as the foundation thereof, ſo much of the bulcke of the fleſh muſt neceſſarily ſinke downe, as the magnitude of the portion of the waſted bone comes unto.

Hip.progn. lib. .cap.8. Aph.65.ſect. 5.

You may know that death is at hand, when the Vlcers that ariſe in or before diſeaſes, are ſudainly either livid or dryed, or pale and withered. For ſuch drineſſe ſheweth the defect of nature, which is not able to ſend the familiar and accuſtomed nutriment to the part ulcerated. But the livid or pale colour is not onely an argument

ment of the overabundance of choler and melancholy, but alſo of the extinction of the native heate. In Vlcers where tumors appeare, the patients ſuffer no convulſions, neither are franticke; for the tumor being in the habite of the body poſſeſſed with an Vlcer, argues that the nervous parts and their originall are free from the noxious humors. But theſe tumors ſuddenly vaniſhing and without manifeſt cauſe, as without application of a diſcuſſing medicine, or bleeding, thoſe who have them on their backs have convulſions and diſtenſions, for that the ſpine of the backe is almoſt wholly nervous; but ſuch as have them on their fore parts, become eyther franticke, or have a ſharpe paine of their ſide, or pleuriſie, or elſe a dyſentery if the tumors be reddiſh; for the forepart of the body is repleniſhed and overſpread with many and large veſſells, into whoſe paſſages the morbificke matter being tranſlated, is preſently carryed to theſe parts which are the ſeats of ſuch diſeaſes.

Aph.67.ſect.5.

Soft and looſe tumors in Vlcers are good, for they ſhew a mildneſſe and gentleneſſe of the humors, but crude and hard ſwellings are naught; for all digeſtion in ſome meaſure reſembles elixation. Vlcers which are ſmooth and ſhining are ill, for they ſhew that there reſides an humour maligne by its acrimony, which frets aſunder the roots of the haires, and depraves the naturall conſtruction of the pores of the skin; whence it is that ſuch as are troubled with Quartaine agues, the Leproſie or *Lues venerea*, have their haire fall off.

Aph.4.ſect.6.

A livid fleſh is ill in Vlcers which cauſe a rottenneſſe or corruption of the bones lying under the fleſh; for it is an argument of the dying heate and corruption of the bone, whence the fleſh hath its originall and integrity.

Hip.lib.de ulc. Gal.cap.2. & 5.lib.Meth.4.

Theſe Vlcers which happen by occaſion of any diſeaſe, as a Dropſy, are hard to be cured; as alſo thoſe whereinto a *varix* or ſwolne veſſell continually caſts in matter; which a preſent diſtemper foments; which have ſwolne, hard and callous lips; and ſuch as are circular or round. An *Hyperſarcoſis*, or fleſhy excreſcence uſually happens to Vlcers not diligently mundified; and if they poſſeſſe the armes or Legs they cauſe a Phlegmon or ſome other tumor in the groines, chiefly if the body bee full of ill humors, as *Avicen* hath noted. For theſe parts by reaſon of their rarity and weakeneſſe are fit and ſubject to defluxions. *Albucraſis* writes that for nine cauſes Vlcers are difficultly repleniſhed with fleſh and cicatrized. The firſt for want of blood, in a bloodleſſe body; the ſecond by reaſon of ill humors and the impurity of the blood; the third by the unfit application of unconvenient medicines; the fourth by reaſon of the ſordidneſſe of the Vlcer; the fifth by the putrifaction of the ſoft and carionlike fleſh encompaſſing the Vlcer; the ſixth when they take their originall from a common cauſe which every where rages with fury, ſuch as are thoſe which are left by the peſtilence; the ſeaventh by reaſon of the callous hardneſſe of the lips of the Vlcer. The eighth when the heavens and aire are of ſuch condition as miniſters fuell to the continuance of the Vlcer, as at Sarogoza in Aragon; the ninth when the bones which lye under it are waiſted by rottenneſſe.

For what cauſes Vlcers are hard to heale.

An Vlcer that caſts forth white, ſmooth, equall quitture, and little or no ſtinking, is eaſily healed; for it argues the victory of the native heate, and the integrity of the ſolid parts. We terme that ſmooth quitture which is abſolutely concocted, neither yeelds any aſperity to the touch, whereby we might ſuſpect that as yet any portion of the humor remaines crude; we call that equall wherein you can note no diverſity of parts; and white not that which is perfectly ſo, but that which is of an aſh colour, as *Galen* obſerves. But it is ill, if when the cure is indifferently forward, a fluxe of blood ſuddainly breake forth in thoſe Vlcers which beate ſtrongly by reaſon of the great inflammation adjoyned therewith. For as *Hippocrates* obſerves, an effuſion of blood happening upon a ſtrong pulſation in Vlcers is evill; for the blood breaking out of an Artery cannot be ſtayed but by force; and alſo this blood is ſo furious by reaſon of the heate and inflammation the nouriſhers of this Vlcer, that it breakes its receptacles, and hence enſues the extinction of the native heate, whence the defect of ſuppuration and a Gangreene enſues. Now for that there flowes two ſorts of excrements from maligne Vlcers, the more thinne is tearmed *Ichor* or *ſanies*, but the more groſſe is named *ſordes*; that is virulent and flowes from pricked nerves, and the *Perioſtia* when they are evill affected; but the other uſually flowes from the

What *pus* or matter is ſmooth, equall and white.

Ad ſeutent. 32.ſect.2.de fract.

Aph.22.ſect.7.

Two ſorts of excrements flow from a maligne Vlcer.

Vlcers of the joynts, and it is the worſer if it be blacke, reddiſh, aſh-coloured, if muddy or unæquall like wine Lees, if it ſtinke. ***Sanies*** is like the water wherein fleſh hath beene waſhed, it argues the preternaturall heate of the part, but when it is pale coloured, it is ſaid to ſhew the extinction of the heate.

CHAP. IIII.

Of the generall cure of Vlcers.

The curing of a ſimple Vlcer conſiſts in exſiccation.

Gal. 7. Meth, cap. 12.

Gal Lib. 4. de comp. med. ſecund. gen.

AN Vlcer is eyther ſimple or compound. A ſimple Vlcer, as an Vlcer hath one and that a ſimple indication, that is, exſiccation; and that more than in a wound, by how much an Vlcer is moiſter than a wound. There are many indications propoſed for the cure of a compound Vlcer, in reſpect of wch *Galen* would have us to keepe this order, that wee have the firſt regard of the moſt urgent, then of the cauſe, then of that, which unleſſe it be taken away, the Vlcer cannot be healed. By giving you an example you may eaſily underſtand the meaning hereof. Imagine on the inſide of the Leg a little above the ancle, an Vlcer very painefull, hollow, putride, aſſociated with the rottenneſſe of the bone, circular, having hard and ſwolne Lips, and engirt with the inflammation and *varices* of the neighbouring parts. If you take this to cure before you doe any thing about the Vlcer, unleſſe you bee called upon by that which urges, as by vehemency of paine, you muſt firſt uſe generall meanes by calling and adviſing with a Phyſition; For in *Galens* opinion, if the whole body require a preparation, then muſt that be done in the firſt place; for in ſome Vlcers purgation onely will bee ſufficient; in ſome bloodletting; others are better by uſing both meanes, which is as the cauſe of the Vlcer proceedes from a repletion or illneſſe of humors. Now by theſe meanes having taken away the cauſe of the Vlcer, you muſt come to the particular cure thereof, beginning with that which is moſt urgent. Wherefore you muſt firſt aſſwage the paine by application of things contrary to the cauſe thereof, as if it proceede from a Phlegmonous diſtemper, which hath long poſſeſt, diſtended and hardned the part, it muſt bee eaſed by evacuation. Firſt, bathing it with warme water, to mollifie and relaxe the skinne, that ſo you may the more eaſily evacuate the contained humors; then ſhall you draw away portion of the matter cauſing the ſwelling and paine by ſcarrification, if the patient ſhall be of ſufficient courage, or elſe by application of hoſe-leaches if hee be more faint hearted; and then you ſhall temper the heate there of by applying *Vnguentum refrigerans Galeni.*

To conclude, you ſhall attempt all things which wee have formerly delivered (in our treatiſe of Tumors) to take away the ſwelling thereof. When you have brought this to that paſſe you deſire, you ſhall come to thoſe which are ſuch, that it cannot be taken away or healed without them, which ſhall be done by orderly helping the defects againſt nature which were conjoyned with the Vlcer, to wit, the rottenneſſe of the bone, which you ſhall helpe by actuall cauteries; and in the meane while you ſhall draw the Vlcer into another forme, to wit, cornered, and you ſhall cut away the callous hardneſſe, and helpe the rottenneſſe. Then muſt you procure the falling away of the Eſchar, and then provide for the ſcailing of the bone by the meanes formerly preſcribed, laſtly the mundified Vlcer muſt be filled with fleſh.

The things conducing to the generating of fleſh.

For generating of fleſh two cauſes muſt concurre, the efficient and materiall; The efficient is, the good temper both of the whole body, as alſo of the Vlcerated part. For this prevailing, there will be an attraction, digeſtion, appoſition and aſſimulation of the laudible juice to the part affected; verily the laudible temper is preſerved by like things, but the vicious is amended by contraries. The matter to bee ſpent upon fleſh, is laudible blood, which offends neither in quality, nor quantity. In this regeneration of the fleſh there appeare two kinds of excrements, the one more thinne and humide called *Sanies*, the other more groſſe termed *Sordes*. Both of theſe for that they are contrary to nature, doe therefore hinder the regeneration of fleſh, and therefore muſt be taken away by applying their contraryes, as by things drying in the firſt degree, and more ſtrongly or weakely detergent according to the complexion of the part and the whole body, and the plenty and quality of the excrementitious humor, and the uncleanneſſe of the Vlcer. For the part muſt bee preſerved by the uſe of the like, but the ulcer orecome by application of things contrary thereto. After that by natures endeavour and the Chirurgions helpe the Vlcer is replete with fleſh, it muſt be cicatrized, that is, covered with a callous skin in ſtead of the true and native skin. It may be cicatrized by ſtrewing of very drying pouders having very little or no acrimony. Thus Alume and vitrioll being burnt and made into pouder, and thinly ſtrewed upon the part doe quickly cicatrize the former fleſhy worke. To this purpoſe alſo ſerve, the roote of *Ariſtolochia*, Aloes, burnt Lead, Pomegranat pills burnt, Litharge, *Tutia*, and alſo plates of Lead beſmeared with quickſilver, whoſe efficacy for this purpoſe Chirurgions ſometimes finde more certaine and powerfull than any other remedies.

What a ſcarre is.

Things cauſing cicatrization.

Chap. V.

Of a diſtempered Vlcer.

Before we ſpeake of a diſtempered Vlcer, it is meete, leaſt that the Chirurgion take one diſtemper for another, briefly to relate the ſignes of each. You may know that an Vlcer is aſſociated with a dry diſtemper by your ſight, as if the Vlcer be as it were wrinckled, if it ſend forth little or no moiſture; alſo it is knowne by touch, if it feele rough and hard. You ſhall correct this diſtemper by humecting medicines, as fomenting it with warme water according to *Galens* opinion, or elſe with *Hydrælæum* (*i.*) Oile and water mixt, but alwayes you muſt firſt purge, if the body ſhall abound with ill humors, or uſe Phlebotomie if the body be plethoricke; otherwiſe you ſhall draw more humors into the part than it can beare. Now you ſhall ſo long foment it, untill the fleſh which is about it begin to looke red, waxe ſoft and moiſt, and the part it ſelfe be a little ſwollne. If you proceede further, you will reſolve all the humor which you have drawne thither, and ſo your labour is in vaine. After the fomentation apply ſuch a remedy to the ulcerated part.

Signes of a diſtempered Vlcer.

Remedies for a dry diſtempered Vlcer.

℞. *cremoris hordei* ℥ij. *fol. malvæ in aq, coct.* ℥j. *pingued. porci* ℥iß. *mellis com.* ℥ß. *miſce in mortario & fiat unguentum.*

You ſhall know a moiſt diſtemper aſſociates the Vlcer by the plenty of the excrementitious humor, which the Vlcer ſends forth; by the ſpongie and fungous ſoftneſſe and growth of the fleſh about it. You ſhall amend this by drying remedies, ſuch as theſe are, which we terme ſarcoticks, having alwayes regard to the plenty of the humour, the proper temper of the part, and other indications formerly mentioned. Amongſt other remedies *Galen* much commends Alume water; for it dries, clenſes and corroborates the affected part. Alſo this enſuing fomentation may be applyed ro good purpoſe. ℞ *roſar. rub. abſinth. beton. tapſi barbati, an. m.* j. *gallarum, nucum cupreſſi, an.* ℨij. *aluminis rochæ* ℨj. *fiat decoctio in vino auſtero, inſtituatur fotus*; Then let *Empl. de ceruſſa* or *De minio* be applyed to the Vlcer. Alſo I have found by experience that the pouder of burnt alome lightly ſtrewed upon the Vlcer is very effectuall in this caſe. You ſhall know that an hot diſtemper aſſociates the Vlcer by redneſſe, or yellowneſſe thereof, by the heate manifeſt to your touch, and the propriety of the paine. Then muſt you have recourſe to refrigerating things, ſuch as *vng. Roſatum Meſ. Refrigerans Gal. Populeon*; ſtoopes and cloathed dipped in plantaine water, Night-ſhade water, or Oxycrate. I have oft found by experience that ſcarrification, or Leaches being applyed, did more conduce than any other remedy. For ſo the chafed blood, which by that meanes is apt to corrupt, is drawne away, and the part its ſelfe is alſo freed of that burden.

Signes of too moiſt an Vlcer.

Gal. lib. 1. ſimp. cap. 7.

Signes of a hot diſtempered Vlcer.

We know a cold diſtemper by the whitiſh or pale colour, by the touch of the Chirurgion, and ſpeach of the patient complaining of the coldneſſe of the ulcerated part. You ſhall correct this by applying and putting bottles filled with water about the part, or elſe Swines bladders halfe filled with the following decoction.

Signes of a cold diſtempered Vlcer.

℞ *origani, pulegij, chamæm. meliloti, an. m.* j. *abſinth. majoranæ, ſalviæ, roriſmar. an. m.* ß.

fiat decoctio in vino generoſo, addendo aquæ vitæ quod ſufficit. Alſo the Vlcer may conveniently bee fomented with ſpunges dipped in the ſame decoction, and let there be applyed thereto *Empl. Oxycroceum*; *emp. de meliloto*; *de Vigo cum mercurio*, and *ſine mercurio*. But if a mixt and compound diſtemper be joyned to the Vlcer, the medicines muſt in like manner be mixt & compoſed. The reſidue of the Chirurgions care and paines muſt be ſpent upon the proper and peculiar cure of the Vlcer, as it is an Vlcer; which we ſaid in the former Chapter was conteined in deterſion, regenerating fleſh and cicatrization thereof.

Chap. VI.

Of an Vlcer with paine.

THere oft times ſo great paine accompanieth Vlcers, that it calls thereto the counſell of the Phyſition. Wherefore if it proceede from any diſtemper, it ſhall be taken away by remedies proper againſt that diſtemper, ſuch as we mentioned in the former Chapter. But if it doe not ſo ceaſe, wee muſt goe on to Narcoticks. Such are cataplaſmes of the leaves of Mandrakes, water lillies, Henbane, Nightſhade, Hemlocke, the ſeeds of Poppy and Oyles of the ſame; to which alſo may be added *Opium*, *Populeon*, and other things of like faculties. But if a maligne acrimonie and virulency of an humour corroding and eating the fleſh lying under it and the lips about it, cauſe and make the paine, you ſhall neither aſſwage it by anodynes, nor Narcoticks; for by application of gentle medicins it wil become worſe and worſe. Wherefore you muſt betake you to Cathæreticks; For ſtrong medicines are fitteſt for ſtrong diſeaſes. Wherefore let a pledget dipped in ſtrong and more than ordinarily powerfull *Ægyptiacum*, or in a little oyle of Vitrioll, be applyed to the Vlcer; for theſe have power to tame this raging paine, and virulent humors. In the meane ſeaſon let refrigerating things be put about the Vlcer, leaſt the vehemency of acrid medicines cauſe a defluxion.

The matter of Narcoticke cataplaſmes.

Catheræticks have power to aſſwage paine.

Chap. VII.

Of Vlcers with overgrowing or proudneſſe of fleſh.

VLcers have oft times proud or overgrowing fleſh in them, either by the negligence of the Chirurgion, or fault of the patient. Againſt this, drying and gently eating or conſuming medicines muſt be applyed; ſuch as are Galls, *cortex thuris*, Aloes, *Tutia*, Antimony, *Pompholix*, Vitrioll, Lead, all of them burnt and waſht if neede require. Of theſe pouders you may alſo make ointments with a little oyle and waxe; but if the proud fleſh, as that which is hard and denſe yeeld not to theſe remedies, we muſt come to cauſticks, or elſe to iron, ſo to cut it off. For in *Galens* opinion, the taking away of proud fleſh is no worke of nature, (as the generating, reſtoring and agglutinating of the fleſh is) but it is performed by medicines which dry vehemently, or elſe by the hand of the Chirurgion; wherefore amongſt the remedies fit for this operation, the pouder of mercury with ſome ſmall quantity of burnt Alume, or burnt Vitrioll alone, ſeeme very effectuall to me. Now for the hard and callous lips of the Vlcer, they muſt bee mollyfied with medicines which have ſuch a faculty, as with Calves, Gooſe, Capons or Ducks greaſe, the oiles of Lillies, ſweet Almonds, Wormes, Whelpes, *Oeſipus*, the mucilages of Marſh-mallowes, Lineſeede, fænugreeke ſeede, Gum *Ammoniacum*, *Galbanum*, *Bdellium*, of which being mixed may be made Emplaiſters, unguents, and liniments, or you ſhall uſe *Empl. Diachylon*, or *de Mucagipibus*, *De Vigo cum mercurio*. To conclude, after we have for ſome few dayes uſed ſuch like remedies, you may apply to the Vlcer a plate of Lead rubbed over with Quickſilver; for this is very effectual to ſmooth an Vlcer and depreſſe the lips; if you ſhall prevaile nothing by this meanes, you muſt come to the cauſticks, by which if you ſtill prevaile nothing, for that the lips of the Vlcer are ſo callous that the cauſtickes cannot peirce into them, you muſt cleave them with a gentle ſcarification, or elſe cut them to the quicke, ſo to make way,

Things waſting ſuperfluous fleſh.

Lib. 3. Meth. cap. 6.

For the callous lips of Vlcers.

or as it were open a window for the medicine to enter in, according to *Galen.* Neither in the interim muſt you omit *Hippocrates* his advice, which is, that by the ſame operation we reduce the ulcer if round, into another figure, to wit, long or triangular.

Lib 4. Meth. cap. 2.

CHAP. VIII.

Of an Vlcer putride and breeding Wormes.

Wormes are divers times bred in ulcers, whence they are called wormie ulcers; the cauſe hereof is the too great excrementitious humidity prepared to putreſie by unnaturall and immoderate heate. Which happens, either for that the ulcer is neglected, or elſe by reaſon of the diſtemper and depraved humors of all the body, or the affected part; or elſe for that the excrementitious humor collected in the ulcer, hath not open and free paſſage forth; as it happens to the ulcers of the eares, noſe, fundament, necke of the wombe, and laſtly to all ſinuous and cuniculous ulcers. Yet it doth not neceſſarily follow that all putrid ulcers muſt have wormes in them; as you may perceive by the definition of a putride ulcer which we gave you before. For the cure of ſuch ulcers after generall meanes, the wormes muſt firſt be taken forth, then the excrementitious humor muſt be drawne away, whence they take their originall. Therefore you ſhall foment the ulcer with the enſuing decoction, which is of force to kill them; for if any labour to take forth all that are quicke he will be much deceived; for they oft times doe ſo tenaciouſly adhere to the ulcerated part, that you cannot plucke them away without much force and paine.

The cauſe of wormes breeding in Vlcers.

℞. *abſinth. centaur. majoris, marrubij, an. M.* j. *fiat decoctio ad* ℔. *ſſ. in qua diſſolve aloes* ʒß. *unguenti ægyptiaci* ℥j. Let the ulcer be fomented and waſhed with this medicine, and let pledgets dipped herein be put into the ulcer; or elſe if the ulcer be cuniculous or full of windings, make injection therewith which may goe into all parts thereof.

A fomentation to kill the wormes.

Archigenes much commends this following medicine. ℞. *Ceruſæ, polij montani, an.* ʒß. *picis navalis liquidæ quantum ſufficit, miſce in mortario pro linimento.* If the putrefaction be ſuch that theſe medicines will not ſuffice for the amendment thereof, you muſt come to more powerfull, or to cauteries alſo, or hot Irons, or to ſection; yet you muſt ſtill beginne with the more gentle, ſuch as this of *Galens* deſcription.

Gal. 4. comp. med.

℞. *ceræ.* ℥ij. *ceruſæ* ℥j. *olei roſ.* ℥ij. *ſalis amnon.* ʒß *ſquam. æris* ʒij. *thur. alum. ærug. malicor. calcis vivæ, an.* ʒj. *fiat emplaſtrum.* Or ℞. *terebinth. lotæ* ℥ij. *ceræ albæ* ʒß *liqueſiant ſimul addendo ſublimati,* ʒß. *ſalis torrefacti, & vitrioli calcinati, an.* ℥j. *fiat mundificativum.* Or you muſt uſe our *Ægyptiacum* alone, which hath Sublimate entring into the compoſition thereof; but in the interim the circuit of the Vlcer muſt be defended with refrigerating, and defenſative things for feare of paine.

CHAP. IX.

Of a ſordide Vlcer.

A Sordide Vlcer after the cure of the body in generall, ſhall be healed with detergent medicines; the indication being drawne from the groſſe and tough excrement, which with the excrementious *Sanies*, as it were beſieging, and blocking up the ulcerated parts, weakens and as it were dulls the force of medicines though powerfull, which cauſeth us to beginne the cure with fomentations and lotions as thus.

℞. *Lixivij com.* ℔. j. *abſinth. marrub. appij. centaur. utriuſque, hypericonis, an. M. ſſ. coquantur, colaturæ, quæ ſufficiat, adde mellis roſati* ℥j. *unguenti ægyptiaci* ʒß. *fiat fotus.* Then uſe the following deterſive medicine: ℞. *ſucci appij, & plantag. an.* ℥ij. *mellis com.* ℥j. *terebinth.* ℥iß. *pul. Ireos Florent. & aloes. an.* ʒß. *fiat medicamentum.*

A detergent lotion.

The Chirurgion muſt wel conſider, at how many dreſſings he ſhall be able to waſh

Detergent medicines without acrimony.

A caution very obſervable in uſe of detergent things.

A diſtinction to be obſerved concerning the impurity of ulcers.

Diligent regard muſt be had of the patients bodies and the affected parts.

away the groſſe *ſordes* or filth ſticking cloſe to the Vlcer, and dry up the excrementitious *ſanies*. For oft times theſe things may be done at one dreſſing; but in others who have more quicke ſenſe or feeling, not ſo ſoone. But when the Vlcer is freed of ſuch groſſe *Sordes* or filth, you muſt forbeare to uſe more acride things for feare of paine, defluxion, inflammation, and eroſion, whereby the Vlcer would become more hollow. Wherefore then we ſhall bee content to apply remedies which dry and cleanſe without acrimony, that wee may ſo helpe natures endeavours in generating fleſh. Such remedies are the pouders of Aloes, Maſtich, Myrrhe, Orris, Litharge, Antimony, roots of Gentian, Barly flower, and the like, which being ſtrewed upon the Vlcer, you ſhall cover it with Lint, and put over that a plate of Lead, rubbed over with quickſilver; and you ſhall put on theſe deterſives and deſiccatives more or leſſe ſtrong, as you ſhall finde it requiſite and neceſſary. For the too plentifull uſe of drying and deterſive things, doth in time hollow the Vlcers, whereby it comes to paſſe that in ſhort time in like ſort, a greater quantity of *Sanies* flowes from the Vlcer, the proper ſubſtance of the fleſh being diſſolved by the force or acrimony of the deterſive medicine; as alſo the proper alimentary humor, which flowed to the part, being in like ſort, a greater quantity of *Sanies* flowed from the Vlcer, the proper ſubſtance of the fleſh being diſſolved by the force or acrimony of the deterſive medicine, as alſo the proper alimentary humor, which flowed to the part, being in like ſort defiled: which thing beguiles the unskilfull Chirurgion. For by how much he ſees the Vlcer flow more plentifully with *ſanies*, he endeavours by ſo much the more to exhauſt and dry up with more acrid medicines theſe humidities as if they were excrementitious; But *Galen* hath long agoe admoniſhed us to take heede hereof, ſetting forth a Hiſtory of a certaine Empericke who dreſſing a ſordide Vlcer with a greene, acrid and eating medicine, diſſolved the fleſh, and ſo conſequently made the Vlcer more hollow, and cauſed more paine and defluxion; whereby it happened that continually adding more acrid medicines, hee continually by his ignorance and unskilfulneſſe increaſed the colliquation of the fleſh, the largeneſſe of the ulcer and excrementitious humidity. Wherefore wee muſt take ſpeciall care, whether the ſordide Vlcer grow each day worſe, by its proper fault and the impurity of the whole body beſides, or elſe by the colliquation of the fleſh and corruption of the benigne and alimentary humor ſent thither for the nutrition of the part, by the too frequent and unskilfull uſe of too acrid a medicine. You may conjecture this by the increaſe of the paine without reaſon, and by the heate and redneſſe of the lips of the Vlcer. Therefore you muſt principally have regard to this, that you give each of your patients his fit meaſure, that is, a convenient and agreeable medicine to each of their ſtrengths, taking indication from the ſtrength, diſtemper, and conſiſtence of the whole body and affected part; for there is a great deale of difference whether you apply a medicine to a plowman or labourer, or to an Eunuch and woman, or whether to the Legge, or eyes. For theſe medicines which to a denſe and hard body and part are onely detergent and drying, the ſame are to delicate and tender bodies and parts cathæreticke and eating, by colliquation of the fleſh, and corruption of the nouriſhment, making an increaſe of *Sordes* or filth; on the contrary thoſe things which doe laudibly and ſufficiently clenſe the fleſh in a ſoft body and dryup the *ſanies*, theſe ſame things applyed to a hard body encreaſe the *ſordes* and *ſanies* by ſuffering them to breed, neither are they of ſufficient power to waſh away the tenacious impurity of a denſe body. Wherefore the skilfull Chirurgion will ſee when he muſt betake himſelfe from too ſtrongly cleanſing and eating medicines, to theſe which are more milde.

CHAP. X.

Of a virulent, eating & maligne Vlcer which is termed Cacoëthes, *& of a Chironian Vlcer.*

How virulent and eating ulcers differ.

VIrulent and eating Vlcers differ not unleſſe in *magis* and *minus*, for we tearme it a virulent Vlcer which ſends forth a virulent *ſanies*, which is properly called *Virus*. This *Virus*, or virulency, when it becomes more maligne, gnawes and feeds upon the parts which lye under, and are adjoyning to the Vlcer, and makes an eating Vlcer. Such Vlcers are by *Galen* called *Dyſepulotica*, that is, difficultly to be cicatrized; for, ſaith he, it happens that the Vlcer is Dyſepuloticke, either for that the part affected may be vitiated either in the habit or temper thereof, ſo that it may corrupt the humor which flowes thither; ſuch an Vlcer is by a particular name tearmed *Cacoethes*; or for that by reaſon of the evill quality of the blood flowing thither and eating the part, the part affected being too moiſt cannot heale up. He further addes that a Chironian Vlcer is farre more maligne than theſe Vlcers which are tearmed *Cacoethe*.

Gal.Lib.4 de comp. med. ſec. genera.

How a chironian ulcer differs from an eating, ſee before, Cap.2.

For the cure; by reaſon that all theſe Vlcers have a large extent, for ſome are more maligne and ill to be cicatrized than otherſome; it is alſo neceſſary to have divers medicines ready and at hand diſtinct both in their faculties and the degrees thereof; ſo that it is no marvaile if they oft faile of their purpoſe, who with the ſame medicine dreſſe and thinke they ſhall heale all maligne Vlcers. This following medicine deſcribed by *Aſclepiades* is much commended by *Galen*.

℞. *ſquamæ æris, æruginis raſæ, an.* ℥j. *ceræ* ℔. ß. *reſinæ laricis.* ℥jß. *quæ liquari poſſunt aridis affundantur*, and make an emplaiſter to bee laid onely upon the Vlcer; for you muſt lay a defenſative about the Vlcer for feare of inflammation. But *Galen* ſaith, that the following Epuloticke of *Primion* excells the reſt, as that which to deſperate Vlcers, (which many have taken in hand and left as uncurable,) was of certaine and approoved uſe.

Gal,lib,4,ſec, gen,Cap,5.

℞ *ſorcos* ℥iij *aluminis ſciſſilis, calcis vivæ, an* ℥ij. *thuris, gallarum, an.* ℥iij. *ceræ,* ℔.j & ℥iij. *ſevi vitulini* ℔. j. & ʒvij. *olei veteris quantum ſufficit, fiat emplaſtrum.*

Gal,lib,1,de comp, med, ſec, gen,Cap,6,

CHAP. XI.

An advertiſement to the young Chirurgion touching the diſtance of times wherein maligne Vlcers are to be dreſſed.

TO ſhew the uſe of *Aſclepiades* his medicine deſcribed in the former Chapter, and convince the errour of theſe Chirurgions, who thinke they doe well for their patients, if they twiſe or thrice on a day dreſſe maligne Vlcers, I have heere thought good to digreſſe a little from my purpoſe and to interpoſe *Galens* authority. Rightly (ſaith *Galen*) hath *Aſclepiades* added theſe words to the formerly deſcribed medicine: And looſe this after three dayes, and foment the Vlcer, and faſten the ſame emplaiſter being waſhed, and apply it againe; for unleſſe the medicine adhere long to the skin, it will doe no good. Which thing notwithſtanding many Phyſitions have beene ignorant of, thinking if they wiped away the *Sanies* from the Vlcer thrice on a day, they ſhould doe better than thoſe who did the ſame but twice a day. But thoſe who dreſſe it but once a day, are reprooved by the patients as negligent. But they are much miſtaken; for you muſt remember, as we have delivered in moſt of our writings, that the qualities of all neighbouring bodies do mutuall actuate and affect each other in ſome degree, although the one thereof bee much more powerfull; for by this reaſon in ſpace of time they become ſomewhat alike, though they otherwiſe differ much; But when the quality of the medicine ſhall bee like in *ſpecies* to the body to bee cured, there followes the better ſucceſſe. Wherefore he which moved by theſe reaſons firſt appointed to uſe the emplaſter formerly applyed, is worthy of commendations; and we ought to follow him much the rather, ſeeing that which he found out by reaſon, is approoved by experience. Neither did he unadviſedly command to foment the wound every third day, that is, at every dreſſing; for ſeeing it is a powerfull medicine, therefore it ſtands in neede of mitigation. Thus much *Galen*, whoſe opinion grounded on reaſon, he can againe confirme with another reaſon. It is already ſufficiently knowne, that medicines can doe nothing in us unleſſe by the force of the native heate, which ſtirres up the faculty of the medicine to operation. But in Vlcers which are abſolutely maligne, the native heate of the affected part is very languid, being broken

Gal,lib,4,de comp, med,ſec, gen:Cap,5.

Galens reaſon further explained.

broken and debilitated by the preſence of the preternaturall heate; ſo that it ſtands in need of a great ſpace of time to actuate the vertue and faculty of the medicine. Wherefore, if in that time, when as the native heate hath much moved and ſtirred up the faculty of the medicine, the ulcer be looſed or opened, and that emplaiſter caſt away which was layd upon the part, and a freſh one layd in ſteede thereof; the heate implanted in the part is either diſſipated by the contact of the ayre, or is weakned and driven in; and that endeavour which was made by the emplaiſter was to no purpoſe, being as it were ſtopped in the midſt of the courſe. But a new emplaiſter being layd on, the heate of the part muſt undergoe a new labour, ſo to ſtirre up the faculty to bring it to act.

Medicines are onely ſuch in faculty.

For all medicines are, what they are, in faculty. Equall to this is their errour, who by too oft renewing their emplaiſters on the ſame day, doe too powerfully clenſe; for ſo they doe not onely take away the excrementitious humors, both *Sordes* and *Sanies*, but alſo the alimentary juice; to wit, the *Rob*, *Cambium*, and *Gluten*, which are the next matter for procreating of laudible fleſh. Wherefore it is not good to dreſſe Vlcers ſo often in one day, and to looſe them to apply new emplaiſters, unleſſe ſome grievous ſymptome (as paine) force us to doe it, which requires to be aſſwaged and mittigated by the often changing and renewing of Anodyne medicines.

CHAP. XII.

How to binde up Vlcers.

The beginning of your binding muſt be at the Vlcer.

Hip. lib. de ulc.

Revulſion into contrary parts.

FOr the binding up of Vlcers, you muſt alwayes beginne your bandage at the Vlcer. Now the Rowler muſt be ſo large that it may not onely cover and comprehend the Vlcer, but alſo ſome portion of the adjacent parts above and below; and let it preſſe the Vlcer with that moderation, that it may only preſſe out the excrementitious humors. For ſo the ulcer wil become dry, and conſequently more neere to healing, as it is obſerved by *Hippocrates*. Let this be the meaſure of your binding, that it be neither too ſtraite for hence would enſue paine and defluxion; nor too laxe, for ſuch is of no uſe. You may moyſten your boulſters and Rowlers in oxycrate or in red and aſtringent wine, eſpecially in Summer; when you have bound it up the part muſt be kept quiet. For according to *Hippocrates*, thoſe who have an ulcer in the legge, ought neither to ſtand, nor ſit, but to lye on a bed. Wherefore when the legges are ulcerated the armes muſt be exerciſed, by handling, lifting up and caſting downe of divers things. But on the contrary if the armes be ulcerated, the legges muſt be exerciſed with walking, or frictions from above downewards, if the patient cannot endure to walke. So the humors and ſpirits which with more violence and greater plenty runne downe to the part affected, may be drawne backe and diverted.

CHAP. XIII.

Of the cure of particular ulcers, and firſt of thoſe of the eyes.

4. Methodi.

FOr that (in *Galens* opinion) the diverſe indication in curing diſeaſes is drawne from the condition of the part, to wit, the temper, complexion, ſite, figure, uſe, dull or quicke ſenſe; Therefore having breefely handled the generall cure both of ſimple and compound and implicite ulcers, I thinke it fit to treate of them now as they are diſtinguiſhed by the parts, beginning with theſe of the eyes. Theſe according to *Celſus*, are ſometimes cauſed by puſtules, or a ſharpe defluxion which frets or eates in ſunder the coates thereof, or elſe by a ſtroake.

Lib. 6. cap. 6. lib. 3. Botryon. Caloma.

Paulus ſets downe theſe differences of the ulcers of the eyes; If (ſaith he) a ſmall, little and hollow ulcer be upon the horny coate, it is by the Greekes termed *Botryon*; but if it be broader and leſſe deepe, it is termed *Caloma*; about the circle of the *Iris* or

Rainebow, it is called ***Argemon.*** If it be cruſty and ſordid, it is termed ***Epicauma.*** Theſe in generall require the ſame cure as the former, that is, to bee mundified, incarnated, dryed and cicatrized; but the part affected indicates more gentle medicines. Wherefore having purged the patient and taken ſome blood both from his arme, as alſo from his veines and temporall Arteries, and bathed him if it be needfull; to divert the defluxion you ſhall to his ſhoulders apply cupping glaſſes with ſcarrification; or elſe bread newly drawne out of the oven, and ſprinkled with *aqua vitæ* or ſome good wine ſhall be applyed to the originall of the ſpinall marrow. But you ſhall apply to the forehead and temples an aſtringent emplaiſter made of *emplaſtrum contra rupturam, ung Comitiſſæ, and Reſiccativum rubrum* mixed together. But this enſuing *Collyrium* deſcribed by *Celſus* and approved by *Hollerius*, ſhall be dropped into the eye. ℞. *æris uſti, cadmiæ uſtæ & lotæ, an.* ℥j. *ex aqua fingatur collyrium quod liquore ovi diſſolvatur.* But in the meane time you muſt diligently obſerve whether you put the eye to any great paine. Wherefore now and then by putting anodyne medicines thereto, it will be good to comfort it. Alſo you may make *collyria* of the decoction of Plantaine, fænugreeke, wormewood, with a little quantity of Sugar Candy, *tutia*, gumme *tragacanth*, myrrhe and vitrioll diſſolved therein. When the ulcer is mundifyed, the following ſarcoticke will be of good uſe.

Argemon.
Epicauma.
The cure.

℞. *ſarcocollæ in lacte muliebri nutritæ,* ʒiij. *pul. diaireos ſimplicis, gum. arabici, tragacanth. an.* ʒß. *mucilaginis fænugræci quantum ſufficit ut inde fiat collyrium.* But you muſt note that for moyſt Vlcers, powders are more convenient than *Collyria.*

A *Collyrium* to clenſe the Vlcers of the eyes.

A ſarcoticke *Collyrium.*

When the ulcer is playned or filled with its proper fleſh, it may bee cicatrized with the following *collyrium.* ℞. *tutiæ, cadmiæ ut decet præparatæ, ceruſæ, antimonÿ, olibani, an.* ʒß. *myrrhæ, ſarcocollæ, ſanguinis Draconis, aloes, opÿ, an.* ℈ß. *cum aqua plantaginis fiat collyrium*; or the powder onely may be conveniently ſtrewed thereon.

An epulotick *Collyrium.*

Celſus hath noted that the cicatrizing of the eyes is incident to two dangers, that is, leaſt they be too hollow, or elſe too thick. If too hollow, they muſt be filled by the following remedy, ℞. *Papaveris lachrimæ,* ʒß. *ſagapeni, opopanacis, an.* ʒß. *æruginis* ʒj. *cumini* ʒiij. *piperis* ʒij. *cadmiæ lotæ & ceruſæ, an.* ʒiß. *cum aqua pluviali fiat collirium.* But if the ſcars be thicke or groſſe, the following remedy will extenuate them. ℞ *cinamom. acaciæ, an.* ʒß. *cadmiæ elotæ, croci, myrrhæ, papaveris lachrymæ, gum. arabici, an.* ʒj *piperis albi, thuris, an.* ℥iß. *æris combuſti,* ʒiij. *cum aqua pluviali fiat collyrium.* But if the ſcarre be upon the *cornea* or horny coate, ſo that it cover the *pupilla* or ſight, the ſight will be intercepted by the denſeneſſe of the membrane. Here you muſt alſo obſerve, that the ſcarres that are on the *Cornea* are white, but theſe on the *Adnata* are red, becauſe this is ſpred over with more little veines than that.

Lib. 6. cap. 6.

A *Collyrium* for hallow ſcarres.

The ſcarres of the Horny coat are white and theſe of the *Adnata* red.

Chap. XIIII.

Of the Ozæna *and Vlcers of the Noſe.*

THe *Ozæna* is a deepe and ſtinking Vlcer in the inſide of the noſe, ſending forth many cruſty and ſtinking excrements. *Celſus* ſaith that ſuch ulcers can ſcarſely be healed. It is cauſed (as *Galen* ſaith) by the diſtillation of acride and putride humors from the head into the noſethrills about the mammillary proceſſes. For the cure, the patient muſt eate ſparingly, and his meate muſt neither be ſharpe nor ſtrong; the humor being prepared muſt be purged; the head dryed and ſtrengthened, that ſo it may neither admit the excrementitious humors, nor ſend them downe; then muſt we come to the part affected with the Vlcer. The Vlcer muſt be dryed with a repelling medicine, ſuch as is the juice of Pomegranats boyled to the halfe in a braſſe veſſell; the powder of Calamint, Creſſes, white Hellebore, the juyce of Creſſes with Alume and other things which you may reade in *Celſus.*

Lib. 6. cap. 8.
Ga. Lib. 3. de comp. med. ſecund. locos cap. 3.
The cure.

Galen out of *Archigenes* wiſhes, to draw up into the noſethrills the juyce of Calamint, or that the Calamint it ſelfe being dryed, and made into powder, may bee blowne with a quill into the noſe. Others uſe this following powder. ℞. *roſ. rub.*

mint. calam. arom. rad. angelicæ, gentian. macis, caryop. an. ʒß. *camph. ambræ, an. gr.* iiij. *moſch. gr.* vj. *fiat pulvis ſubtiliſsimus. Manardus* writes that the Vrine of an Aſſe, though a naſty medicine, is an excellent remedy in this affect. But if the inveterate and contumacious evill doe not yeeld to theſe remedies, then you muſt have recourſe to Coproſe, Verdigreece, *ſal ammoniacum*, and Alume with Vinegar. It divers times happens that the Vlcer ſpreading on, comes to take hold of the *Oſſa ethmoidea* or ſive-like bones; in which caſe you muſt not forcibly plucke them out; but referre the whole buſineſſe to nature, and expect when they ſhall come away of themſelves, making in the meane while injections into the noſethrils of *aqua vitæ*, wherein Cephalicke pouders have beene ſteeped for the greater drying.

Lib. 20. epiſt. 5.

An injection when the *Ozæna* ſhall come to the *Oſſa Ethmoidea.*

CHAP. XV.

Of the Vlcers of the mouth.

Aph. 24, ſect. 3 Celſus lib, 6, cap, 11. Gal. com, ad 3, lib. epidem:

OF this tribe are the *Aphthæ*, Vlcers familliar to little children, according to *Hippocrates*. They oft times beginne at the gums, and by the palate of the mouth creepe into the *uvula*, throtle, and over all the mouth, as *Celſus* ſaith. *Galen* makes two kinds of *Aphtha's*, the one of eaſie cure, ſuch as that which uſually troubles children by reaſon of the acrimony of the nurſes milke; the other is maligne by reaſon of an affluxe of an evill humor (that is, venenate and maligne) into the mouth.

The cure.

For the cure, it ſhall be good to abſtaine from all acride things, and if it be a ſucking child, it will not be amiſſe to temper the nurſes milke with refrigerating meates, bathing the whole body, and fomenting the dugges with warme water; for all the members in children are moſt tender, and as it were mucous, and their mouths are unaccuſtomed to meates and drinkes. For topicke medicines, you muſt make choiſe of ſuch which may quickely and readily worke the effect; for heere the condition of the affected part is ſuch, that they cannot long remaine and adheere thereto. Therefore if the Vlcer be maligne, it muſt be lightly touched with *aqua fortis* which hath beene uſed in ſeparating mettalls and which beſides is tempered with ſixe parts of common water. You may for the ſame purpoſe uſe the oyles of Vitrioll, Sulphur, Antimony, Mercury water and the like.

Aetius wiſhes you to touch and correct ſuch Vlcers with a locke of wooll dipped in ſcalding oyle, and ſo faſtened to the end of a probe, untill they waxe white and become ſmooth or plaine. For ſo their eating and ſpreading force will at length be bridled, and laudible fleſh grow up in place of that which is eaten. After ſuch burning it will be good to waſh the mouth with the following gargariſme, which alſo of its ſelfe alone will ſerve to cure Aphtha's, which are not maligne.

A gargariſme for the *Aphthæ.*

℞. *hordei integri p.* j. *plantag. ceterach, piloſellæ, agrimoniæ, an. M.* j. *fiat decoctio ad* ℔. j. *in qua diſſolve mellis roſati* ℥j. *diamoron*, ʒß. *fiat gargariſma.* You may alſo make other gargles, of Pomegranate pills, Balauſties, Sumach, Berberies, red roſes being boyled, and diſſolving in the ſtrayned liquor *Diamoron* and *Dianucum* with a little Alume. For *Galen* writes, that ſimple Vlcers of the mouth are healed with things which dry with moderation; now *Diamoron* and *Dianucum* are ſuch. But others ſtand in neede of ſtrong medicines, with ſuch like. If the palate be ſeazed upon, we muſt uſe the more diligence and care; for there is danger, leaſt being the part is hot and moyſt, the bone which lyes under which is rare and humide, may bee corrupted by the contagion and fall away, and the voyce or ſpeech be ſpoyled. If the Vlcer be pockie, omitting the common remedyes of Vlcers, you muſt ſpeedily betake your ſelfe to the proper antidote of that diſeaſe, to wit, quick-ſilver.

Lib. 6. meth. Cap. 10.

Vlcers of the palate muſt be quickely and carefully dreſſed.

Fiſtulous Vlcers often take hold on the Gummes, whence the roote of the next tooth becomes rotten, and ſo farre that the acrimonie of the *Sanies* oft times makes its ſelfe a paſſage forth on the outſide under the chinne; which thing puts many into a falſe conceite of the *ſcrophulæ* or Kings evill, and conſequently of an uncurable diſeaſe. In ſuch a caſe *Aëtius*, and *Celſus* counſell is, to take out the rotten tooth, for ſo

Aetius lib. 6. cap. 3. Celſus lib. 6. cap. 13.

the *Fiſtula* will be taken away, the Gum preſſing and thruſting its ſelfe into the place of the tooth which was taken forth; and ſo the cauſe nouriſhing the putrefaction being taken away, (that is, the tooth) the reſt of the cure will be more eaſy. The Vlcers of the tongue may be cured by the ſame remedies by which the reſt of the mouth; yet thoſe which breede on the ſide thereof endure very long, and you muſt looke whether or no there be not ſome ſharpe tooth over againſt it, which will not ſuffer the Vlcer in that place to heale; which if there be, then muſt you take it away with a file.

Chap. XVI.

Of the Vlcers of the Eares.

Their cauſes.

VLcers are bred in the auditory paſſage both by an externall cauſe, as a ſtroake, or fall, as alſo by an internall, as an abſceſſe there generated. They oft times flow with much matter, not there generated, for ſuch Vlcers are uſually but ſmall and beſides in a ſpermaticke part, but for that the braine doth that way disburden its ſelfe.

The cure.

For the cure, the cheefe regard muſt be had of the antecedent cauſe, which feedes the Vlcer, and it muſt be diverted by purging medicines, Maſticatories and Errhines. This is the forme of a Maſticatory. ℞. *Maſtic.* ʒj. *ſtaphiſagr. & pyreth. an.* ℈j. *cinam. & caryoph. an.* ʒß. *fiant Maſticatoria, utatur manè & veſperi.* But this is the forme of an Errhine. ℞ *ſucci betonic. mercurial: & meliſſæ, an* ℥ß. *vini albi* ℥j, *miſce & frequenter naribus attrahatur.* For topicke medicines we muſt ſhunne all fatty and oyly things, as *Galen* ſets downe *in Method. medendi*, where he findes fault with a certaine follower of *Theſſalus* who by uſing *Tetrapharmacum*, made the Vlcer in the eare grow each day more filthy than other, which *Galen* healed with the Trochiſces of *Andronius* diſſolved in Vinegar, whoſe compoſure is as followeth. ℞ *balauſt.* ʒij, *alumin.* ʒj, *atrament. ſutor.* ʒij, *myrrhæ.* ʒj, *thur. ariſtoloch. gallarum, an.* ʒj, *ſalis Ammon.* ʒj, *excipiantur omnia melicrato, & fiant trochiſci.* *Galen* in the ſame place witneſſeth, that he hath healed inveterate Vlcers and of two yeares old of this kind, with the ſcailes of Iron made into powder, and then boyled in ſharpe Vinegar untill it acquired the conſiſtence of Honey: Moreover an Oxes gall diſſolved in ſtrong Vinegar, and dropped in warme, amends and dryes up the putrefaction wherewith theſe Vlcers flow. Alſo the ſcailes of Iron made into powder boyled in ſharpe Vinegar, dryed and ſtrewed upon them. But if the ſtraitneſſe of the paſſages ſhould not give leave to the matter contained in the windings of the eares to paſſe forth, then muſt it bee drawne out with an Inſtrument thereupon called a *Pyoulcos*, or matter-drawer, whereof this is the figure.

A maſticatory.

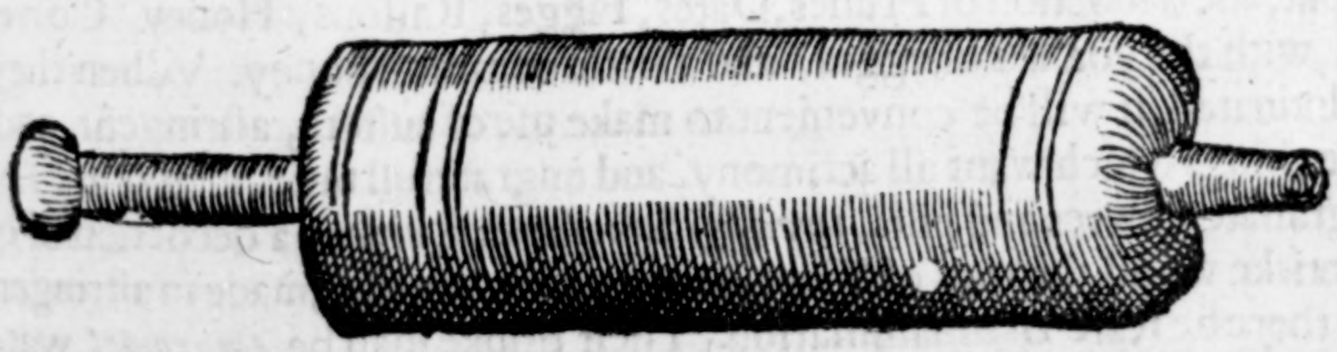
An Errhine.

The compoſition of *Andronius* his trochiſces.

Scailes of Iron.

Of the *Pyoulcos* *Galen* makes mention 2 *ad Glauconem*.

The figure of a Pyoulcos, *or matter-drawer.*



CHAP.

CHAP. XVII.

Of the Vlcers of the windpipe, weaſon, ſtomacke and Gutts.

The Cauſes.

THeſe parts are ulcerated either by an externall cauſe as an acride medicine, or poyſon ſwallowed downe; or by an internall cauſe, as a maligne fretting humor which may equall the force of poyſon generated in the body, and reſtrained in theſe parts.

Signes.

If the paine be encreaſed by ſwallowing or breathing, it is the ſigne of an Vlcer in the weazon, or windepipe joyning thereto; But the paine is moſt ſenſibly felt when as that which is ſwallowed is either ſoure or acride, or the ayre breathed in, is more hot or cold than ordinary. But if the cauſe of paine lye faſtened in the ſtomacke, more greevous ſymptomes urge; for ſometimes they ſwound, have a nauſeous diſpoſition and vomiting, convulſions, gnawings, and paine almoſt intollerable, and the coldneſſe of the extreame parts; all which when preſent at once, few ſcape unleſſe ſuch as are young, and have very ſtrong bodyes. The ſame affect may befall the whole ſtomacke, but becauſe both for the bitterneſſe of paine, and greatneſſe of danger, that Vlcer is farre more greevous which takes hold of the mouth of the Ventricle, honoured by the Ancients with the name of the heart;

Gal. lib. 5. de loc. affect. cap. 5.

therefore Phyſitions doe not make ſo great a reckoning of that which happens in the lower part of the ſtomacke. Now we know that the Guts are ulcerated if *Pus*, or much purulent matter come forth by ſtoole; if blood come that way with much griping; for by the *Pus* ſtaying and as it were gathered together in that place, there is as it were a certaine continuall *Teneſmus*, or deſire to goe to ſtoole, Now all ſuch Vlcers are cured by meates and drinkes, rather than by medicines, according to *Galen*.

Lib. 4. & 5. Method.

The cure.

Therefore you muſt make choyſe of all ſuch meates and drinkes as are gentle, and have a lenitive faculty, ſhunning acride things; for *Tutia*, Lytharge, Ceruſe, Verdigreece and the like, have no place heere, as they have in other Vlcers. But when as the Vlcer ſhall be in the Gullet or Weazon, you muſt have a care that ſuch things may have ſome viſcidity or toughneſſe, and be ſwallowed by little, and little, and at diverſe times; otherwiſe they will not much availe, becauſe they cannot make any ſtay, in theſe commune wayes of breath and meat; therefore they preſently ſlip downe and flow away;

How to take medicines for Vlcers of the throate.

wherefore all ſuch things ſhall be uſed in forme of an *Eglegma*, to be taken lying on the backe, and ſwallowed downe by little and little, opening the muſcles of the throate, leaſt the medicine paſſing downe ſodainely and in great quantity, cauſe a cough, a thing exceeding hurtfull to theſe kinds of Vlcers. When they muſt be clenſed, you ſhall have crude honey, which hath a ſingular faculty, above all other detergent things, in theſe kind of Vlcers. But when they can conveniently ſwallow, you ſhall mixe Gumme Tragacanth diſſolved in ſome aſtringent decoction.

Why acride things muſt be ſhunned in theſe Vlcers.

In Vlcers of the ſtomacke all acride things (as I have formerly adviſed) muſt be ſhunned, as thoſe which may cauſe paine, inflammation and vomite, and beſides hinder the digeſtion of the meate. Therefore let them frequently uſe a ptiſan, and ſugered gellyes wherein Gumme Tragacanth, and bole Armenicke have beene put, the decoction of Prunes, Dates, Figges, Raiſons, Honey, Cowes milke boyled with the yoalkes of egges, and a little common honey. When they are to be agglutinated, it will be convenient to make uſe of auſtere, aſtringent, and agglutinative things which want all acrimony, and ungratefull taſte, ſuch as are *Hypociſtis*, Pomegranate flowres and pills, *terra ſigillata, ſumach, acacia*, a decoction of quinces, the Lentiske wood, the tops of Vines, of brambles, myrtles, made in aſtringent wine, unleſſe there be feare of inflammation. Their drinke ſhall be *Hydromel* water with Sugar, ſyrupe of Violets and Iujubes.

How powerfull Honey is to cure ſuch kind of Vlcers.

Honey mixed with other medicines is a very fitting remedy for Vlcers of the guts and other parts more remote from the ſtomacke; for if you ſhall uſe aſtringent medicines alone of themſelves, they will ſticke to the ſtomacke; neither will they carry their ſtrength any further; but honey mixed with them, beſides that it diſtributes them to the reſt of the body, and helpes them forwards to the affected parts; alſo clenſes the Vlcers themſelves. Here alſo Aſſes milke may with good ſucceſſe be uſed in ſtead of Goates or Cowes milke. The uſe of a vulnerary potion is alſo commendable, if ſo bee that it bee made of ſuch hearbes and ſimples, as by a certaine tacite familiarity have reſpect to the parts affected. But the Vlcers of the Guts have this difference amongſt themſelves, that if the greater guts be affected, you may heale them with a Glyſter and injections, made alſo ſharpe to correct the putrefaction; ſuch as are thoſe which are made of Barly water, or wine with *Ægyptiacum*. But if the ſmall guts be ulcerated, they muſt bee rather healed by potions and other things taken at the mouth, for that (as *Galen* ſaith) theſe things which are put up into the body by the Fundament, doe not commonly aſcend to the ſmall or ſlender guts, but ſuch as are taken at the mouth cannot come unleſſe with the loſſe of their faculty, ſo farre as the great guts.

Egyptiacum good for the Vlcers of the greater guts. *Lib.5.meth.*

CHAP. XVIII.

Of the Vlcers of the Kidneyes and Bladder.

Cauſes.

VLcers are cauſed in the Kidnyes and Bladder, either by the uſe of acride meates, drinkes, or medicines, as *Cantharides*; or elſe by the collection of an acride humor bred in that place, ſent or falne thither; or elſe by the rupture of ſome veſſell, or an abſceſſe broken and degenerated into an Vlcer, as it ſometimes comes to paſſe. They are diſcerned by their ſite, for the paine and heavineſſe of Vlcers of the Reines comes to the Loynes, and the *Pus* or matter is evacuated well and throughly mixed with the Vrine.

Signes.

Hip Aphor.81 ſect.4.

Neither doth the *Pus* which flowes from the reines ſtinke ſo ill, as that which is caſt forth of the bladder; the reaſon is, for that the bladder being a bloodleſſe, fleſhleſſe & membranous part, hath not ſuch power to reſiſt putrefaction. That *pus* which flowes from the Kidneyes never flowes without water; and although by long keeping in an Vrinall, it at length ſubſides or falls to the bottome, and may be ſeene ſeparated; yet when it is firſt made, you may ſee it perfectly mixed with the Vrine; but that *Pus* w^{ch} flowes from the bladder is oft times made alone without Vrine; & uſually it comes to paſſe that the *Pus*, or matter which flowes from the ulcerated Kidnyes, hath in it certaine caruncles, or as it were haires, according to the rule of *Hippocrates*: Thoſe who in a thicke Vrine have little caruncles, and as it were haires come forth together therewith, they come from their Kidnyes; but on the contrarie thoſe who have certaine bran-like ſcailes come from them in a thicke Vrine, their bladder is ſcabby or troubled with a ſcabby Vlcer.

Aphor.76. ſect.4.

Aphor.77. ſect.4.

The cure.

For the cure; it is expedient that the belly be ſoluble either by nature or Art, and the uſe of mollifying Glyſters. And it is good to vomit ſometimes, ſo to draw backe the humors by whoſe confluxe into the affected part the Vlcer might bee fed and made more ſordide and filthy. You muſt beware of ſtrong purgations, leaſt the humors being moved and too much agitated, the matter fit to nouriſh the Vlcer may fall downe upon the Kidnyes or bladder. The enſuing potion is very effectuall to mundifie thoſe kind of Vlcers.

Why we muſt ſhunne ſtrong purges.

Things to clenſe theſe Vlcers.

℞. *Hordei integri, M.* ij. *glycyrrhizæ raſ. & contuſ.* ℥ß. *rad. acetoſæ & petroſel. an.* ʒvj. *fiat decoctio ad* ℔. j. *in colatura diſſolve mellis diſpum.* ℥ij. Let him take every morning the quantity of foure Ounces. *Gordonius* exceedingly commends the following Trochiſces. ℞. *quator ſem. frig. maj. mundatorum, ſem. papaveris albi, ſem. malva, portul. cydon. baccarum myrti, tragacanth. gum. arab. nucum pinearum mund. piſtach. glycyrrhizæ mund. mucaginis ſem. pſilij, amygd. dulc. hordei mund, an.* ʒij. *bol. armeni, ſang. drac. ſpodij, roſarum, myrrhæ an.* ℥ß. *excipiantur hydromelite, & fingantur trochiſci ſinguli ponderis* ʒij. Let him take one thereof in the morning diſſolved in Barly water or Goates milke. *Galen* bids to mixe honey and diureticke things with medicines made for the Vlcers of the Reines and bladder, for that they gently move Vrine, and are as vehicles to carry the medicines to the part affected. Vlcers of the bladder are either in the bottome thereof, or at the necke and urinary paſſage.

Trochiſces for the Vlcers of the Kidnyes and bladder.

4. Method.

If they be in the bottome, the paine is almoſt continuall; if in the necke, the paine then prickes and is moſt terrible when they make water and preſently after. The Vlcer which is is the bottome ſends forth certaine ſcaly or skinny excrements together with the Vrine; but that which is in the necke, cauſes almoſt a continuall *Tentigo*. Thoſe which are in the bottome are for the moſt part incurable, both by

Signes to know what part of the bladder is ulcerated.

Why ulcers in the bottome of the bladder are uncureable.

reaſon of the bloodleſſe and nervous nature of the part, as alſo for that the Vlcer is continually chaſed and troubled by the acrimony of the Vrine, ſo that it can hardly be cicatrized. For even after making of water ſome reliques of the Vrine alwayes remaine in the bottome of the bladder, which could not therefore paſſe forth together with the reſt of the Vrine, for that for the paſſing forth of the Vrine, the bladder being diſtended before, falls and is complicated in its ſelfe. Vlcers of the bladder are healed with the ſame medicines as thoſe of the reines are; but theſe not onely taken by the mouth but alſo injected by the urinary paſſage. Theſe injections may be made of *Gordonius* his Trochiſces formerly preſcribed, being diſſolved in ſome convenient liquor; but becauſe Vlcers of the bladder cauſe greater and more ſharpe paine than thoſe of the Kidnyes, therefore the Chirurgion muſt bee more diligent in uſing Anodynes. For this purpoſe, I have often by experience found, that the oyle of hen-bane made by expreſſion gives certaine helpe. Hee ſhall doe the ſame with Cataplaſmes and liniments applyed to the parts about the *Pecten* and all the lower belly and *perinæum*, as alſo by caſting in of Gliſters. If that they ſtinke, it will not be amiſſe to make injection of a little *Ægyptiacum* diſſolved in wine, plaintaine or roſe water. For I have often uſed this remedy in ſuch a caſe with very proſperous ſucceſſe.

Egyptiacum for the ulcers of the bladder.

Chap. XIX.

Of the Vlcers of the wombe.

The cauſes.

Lib. 3. ſect. 12. tract. 2, cap. 5.

Signes.

VLcers are bred in the wombe either by the confluxe of an acride, or biting humor, fretting the coates thereof, or by a tumor againſt nature degenerating into an Abſeſſe, or by a difficult and hard labour; they are knowne by paine at the *perinæum*, and the effluxe of *Pus* and Sanies by the privity All of them in the opinion of *Avicen* are either putride, when as the *Sanies* breaking forth is of a ſtinking ſmell, and in colour reſembles the water wherein fleſh hath beene waſhed; or elſe ſordide, when as they flow with many virulent and crude humors; or elſe are eating or ſpreading Vlcers, when as they caſt forth blacke *Sanies*, and have pulſation joyned with much paine. Beſides they differ amongſt themſelves in ſite, for either they poſſeſſe the necke and are known by the ſight, by putting in a *ſpeculum*; or elſe are in the bottome, and are manifeſted by the condition of the more liquid and ſerous excrements, and the ſite of the paine.

The cure.

Why ſtrongly drying things are good for Vlcers of the wombe.

An iniection for an Vlcer in the bottome of the wombe.

An injection hindring putrefaction.

They are cured with the ſame remedies wherewith the ulcers of the mouth to wit, with *aqua fortis*, the oyle of Vitrioll and antimony, and other things made ſomewhat more milde, and corrected with that moderation, that the ulcerated parts of the wombe may bee ſafely touched with them; it is requiſite that the remedies which are applyed to the Vlcers of the wombe, doe in a moment that which is expected of them, for they cannot long adhere or ſticke in the wombe, as neither to the mouth. *Galen* ſaith that very drying medicines are exceeding fit for the Vlcers of the wombe, that ſo the putrefaction may be hindred or reſtrained, whereto this part as being hot and moyſt is very ſubject; beſides that the whole body unto this part as unto a ſinke ſends downe its excrements. If an ulcer take hold of the bottome of the wombe, it ſhall be cleanſed and the part alſo ſtrengthened by making this following injection. ℞ *hordei integri p.* ij. *guajaci.* ℥j. *rad. Ireos.* ʒß. *abſinth. plant. centaur. utriuſque, an. M.* j *fiat decoct. in aqua fabrorum ad* ℔. ij. *in quibus diſſolve mellis roſati, & ſyrupi de abſinthio, an.* ℥iij. *fiat injectio.* For amending the ſtinking ſmell I have often had certaine experience of this enſuing remedy. ℞. *vini rub.* ℔. j. *unguent. ægyptiaci* ℥ij. *bulliant parum.* Thus the putrifaction may be corrected and the painefull maliciouſneſſe of the humor abated. Vlcers when they are clenſed muſt preſently be cicatrized; that may be done with Alume water, the water of plantaine wherein a little vitrioll or Alume have beene diſſolved. Laſtly, if remedies nothing availing, the Vlcer turne into a *Cancer*, it muſt be dreſſed with anodynes and remedies proper for a *Cancer*, which you may finde ſet downe in the proper treatiſe of *Cancers*. The cure of Vlcers of the fundament was to bee joyned to the cure of theſe of the wombe; but I have thought good to referre it to the treatiſe of *Fiſtula's*, as I doe the cure of theſe of the vrinary paſſage to the Treatiſe of the *Lues venerea*.

Chap.

Chap. XX.

Of the Varices *and their cure by cutting.*

A *Varix* is the dilatation of a Veine, ſome whiles of one and that a ſimple branch, otherwhiles of many. Every *Varix* is either ſtraight or crooked, and as it were infolded into certaine windings within its ſelfe. Many parts of the body are ſubject to *Varices*, as the temples, the region of the belly under the Navill, the teſticles, wombe, fundament, but principally the thighes and legges. The matter of them is uſually melancholy blood, for *Varices* often grow in men of a malancholy temper, and which uſually feed on groſſe meates, or ſuch as breed groſſe and melancholy humors. Alſo women with child, are commonly troubled with them, by reaſon of the heaping together of their ſuppreſſed menſtruall evacuation. The precedent cauſes are a vehement concuſſion of the body, leaping, running, a painefull journey on foote, a fall, the carrying of a heavy burden, torture or Racking. This kind of diſeaſe gives manifeſt ſignes thereof by the largeneſſe, thickneſſe, ſwelling and colour of the Veines.

What a *Varix* is and what be the differences thereof.

The matter;

The cauſes;

Signes,

It is beſt not to meddle with ſuch as are inveterate; for of ſuch being cured there is to be feared a refluxe of the melancholy blood to the noble parts, whence there may be imminent danger of maligne Vlcers, a Cancer, Madneſſe or ſuffocation.

The cure,

When as many *Varices* and diverſly implicite are in the legges, they often ſwell with congealed and dryed blood, and cauſe paine which is increaſed by going and compreſſion. Such like *Varices* are to be opened by dividing the veine with a Lancet, and then the blood muſt be preſſed out, and evacuated by preſſing it upwards and downewards; which I have oft times done, and that with happy ſucceſſe to the patients, whom I have made to reſt for ſome few dayes, and have applyed convenient medicines. A *Varix* is often cut in the inſide of the legge a little below the knee, in which place commonly the originall thereof is ſeene. He which goes about to intercept a *Varix* downewards from the firſt originall and as it were fountaine thereof, makes the cure far more difficult. For hence it is divided as it were into many rivelets, all which the Chirurgion is forced to follow.

The cutting of *Varices*

A *Varix* is therfore cut or taken away ſo to intercept the paſſage of the blood and humors mixed together therewith, flowing to an Vlcer ſeated beneath; or elſe leaſt that by the too great quantitie of blood, the veſſell ſhould be broken, and death bee occaſioned by a hæmorrhagie proceeding from thence. Now this is the manner of cutting it. Let the patient lye upon his backe on a bench or table, then make a ligature upon the legge in two places the diſtance of ſome foure fingers each from other, wherein the exciſion may be made, for ſo the Veine will ſwell up and come more in ſight, and beſides you may alſo marke it with inke; then taking the skin up betweene your fingers cut it longwayes according as you have marked it, then free the bared veine from the adjacent bodies; and put thereunder a blunt pointed needle (leaſt you pricke the veine) thred with a ſtrong double thred, and ſo binde it faſt; and then let it be opened with a Lancet, in the middle under the Ligature juſt as you open a veine, and draw as much therehence as ſhall be fit. Then ſtraight make a Ligature in the lower part of the forementioned Veine, and then cut away as much of the ſayd Veine as is convenient betweene the Ligatures, and ſo let the ends thereof withdraw themſelves into the fleſh above and below; let theſe ligatures alone untill ſuch time as they fall away of themſelves. The operation being performed, let an aſtringent medicine be applyed to the wound and the neighbouring parts; neither muſt you ſtirre the wound any more for the ſpace of three dayes. Then doe all other things as are fit to be done to other ſuch affects.

For what intention a *Varix* muſt be cut.

Paulus cap. 82. *lib.* 6.
The manner how to cut it.

Chap. XXI.

Of Fiſtula's.

What a Fiſtula is.

A Fiſtula is a ſinuous, white, narrow, callous and not ſeldome unperceivable Vlcer. It tooke its denomination from the ſimilitude of a reeden (Fiſtula) that is, a pipe, like whoſe hollownes it is. A Fiſtula is bred in ſundry parts of the body, and commonly followes upon Abſceſſes or Vlcers not well cured.

What a Callousus.

The differences of Fiſtula's.

The ſignes.

The ſigne that the bone is bare from the condition of the matter which is caſt forth.

Aëtius tetra. 4. ſect. 2 cap. 55.

Old Fiſtula's if cloſed prove mortall.

A *Callous* is a certaine fleſhy ſubſtance, white, ſolid, or denſe and hard, dry and without paine, generated by heaping up of dryed excrementitious phlegme, or elſe aduſt melancholy, encompaſſing the circuite of the Vlcer, and ſubſtituting its ſelfe into the place of laudible fleſh. The *Sinus* or cavity of a Fiſtula is ſometimes dry, and otherwhile drops with continuall moiſture: ſometimes the dropping of the matter ſodainly ceaſes, and the orifice thereof is ſhut up, that ſo it may deceive both the Chirurgion and the Patient with a falſe ſhew of an abſolute cure; for within a while after it will open againe and run as formerly it did. Some Fiſtula's are bred by the corruption of a bone, others of a nerve, others of membranes, and others of other parts of the body. Some run ſtraight in, others and that the greater part, have turnings and windings; ſome have one, others have more orifices and windings; ſome are at the Ioynts, others penetrate into ſome capacity of the body, as into the cheſt, belly, guts, womb, bladder; ſome are eaſily, others difficultly cured, and ſome wholly uncurable. There are divers ſignes of Fiſtula's according to the variety of the parts they poſſeſſe; for if that which you touch with the end of your probe make reſiſtance, and reſound, then you may know that it is come to the bone; and then if the end of the probe ſlip up and downe as on a ſmooth and polite ſuperficies, it is a ſigne that the bone is yet ſound; but if it ſtop and ſtay in any place as in a rough way, then know that the bone is eaten, rough and periſhed; ſometimes the bone lies bare, and then you neede not uſe the probe. Beſides alſo it is a ſigne that the bone is affected, if there be a purulent efflux of an unctuous or oily matter, not much unlike that marrow wherewith the bone is nouriſhed. For every excrement ſhewes the condition of the nouriſhment of the part whence it is ſent; in a Fiſtula which penetrates to a Nerve, the patient is troubled with a pricking paine, eſpecially when you come to ſearch it with a probe, eſpecially if the matter which flowes downe be more acrid. Oft times if it be cold, the member is ſtupified the motion being weakned; beſides alſo the matter which flowes from thence is more ſubtle, and ſomewhat like unto that which flowes from the bones, yet not oily nor fat, but ſanious and viſcous reſembling the condition of the alimentary humor of the Nerves. The ſame uſually appeares and happens in Fiſtula's which penetrate to the Tendons and thoſe membranes which involve the muſcles. If the Fiſtula bee within the fleſh, the matter flowing thence is more thicke and plentifull, ſmooth, white and equall. If it deſcend into the Veines or Arteries, the ſame happen as in thoſe of the Nerves; but that there is no ſuch great paine in ſearching with your probe, nor no offence or impediment in the uſe of any member: yet if the matter of the Fiſtulous Vlcer be ſo acrid, as that it corrode the veſſells, blood will flow forth; and that more thicke if it be from a veine, but more ſubtle and with ſome murmuring if from an Artery. Old Fiſtula's and ſuch as have run for many yeares, if ſuddainly ſhut up, cauſe death, eſpecially in an ancient and weake body.

Chap. XXII.

Of the cure of Fiſtula's.

How to finde out the windings and cavities of Fiſtula's.

FOr the cure; in the firſt place it wil be expedient to ſearch the Fiſtula; & that either with a waxe ſize, a probe of lead, gold or ſilver, to find out the depth and windings or corners thereof. But if the Fiſtula be hollowed with two

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or more orifices, and thoſe cuniculous, ſo that you cannot poſſibly and certainly ſearch or finde them all out with your probe; then muſt you caſt an injection into ſome one of theſe holes, and ſo obſerve the places where it comes forth, for ſo you may learne how many, and how deepe or ſuperficiary cavities there be; then by making inciſions you muſt lay open and cut away the callous parts. You muſt make inciſions with an inciſion knife or razour, or elſe apply actuall or potentiall cauteries; for nature cannot unleſſe the Callous ſubſtance bee firſt taken away, reſtore or generate fleſh or agglutinate the diſtant bodies. For hard things cannot grow together, unleſſe by the interpoſition of glue, ſuch as is laudible blood; but a callous body on all ſides poſſeſſing the ſurface of the ulcerated fleſh, hinders the flowing of the blood out of the capillary veines for the reſtoring of the loſt ſubſtance and uniting of the disjoyned parts. If you at any time make cauſticke injections into the Fiſtula, you muſt preſently ſtop the orifice thereof, that ſo they may have time to worke the effect, for which they are intended. Which thing we may conjecture by the tumor of the part, the digeſture of the flowing matter, and its leſſer quantity. Then you muſt haſten the falling away of the Eſchar, and then the Vlcer muſt be dreſſed like other Vlcers. But oft times the *Callous* which poſſeſſes the ſinuous cavity of a Fiſtula, overcome by the power of acrid and eſcharoticke medicines comes whole forth, and falls out like a pipe, and ſo leaves a pure Vlcer underneath it. Which I obſerved in a certaine Gentleman, when I had waſhed with ſtrong *Ægyptiacum* divers times a Fiſtulous Vlcer in his thigh ſhot through with a bullet; then preſently by putting in my Balſame formerly deſcribed, he grew well in a ſhort time. Fiſtula's which are neare great veſſells, Nerves or principall intrailes, muſt not bee medled with, unleſſe with great caution. When a Fiſtula proceeds by the fault of a corrupt bone, it is to be conſidered whether that fault in your bone be ſuperficiary, or deeper in, or whether it is wholly rotten and periſhed. For if the default be ſuperficiary it may eaſily be taken away with a deſquammatory Trepan; but if it penetrate even to the marrow, it muſt be taken forth with cutting mullets, firſt having made way with a *Terebellum*. But if the bone be quite rotten and periſhed, it muſt bee wholly taken away, which may be fitly done, in the joynts of the fingers, the *radius* of the Cubite and Legge; but no ſuch thing may be attempted in the ſocket of the Huckle bone, the head of the Thigh bone, or any of the Rack bones when they are mortified, neither in thoſe Fiſtula's, which are of their owne nature uncurable; but you ſhall thinke you have diſcharged your duty and done ſufficiently for the Patient, if you leave it with a prognoſticke. Of this nature are Fiſtula's which penetrate even to the bowells, which come into the parts oreſpread with large veſſells or Nerves, which happen to effeminate and tender perſons, who had rather dye by much, than to ſuffer the paine and torment of the operation. Like caution muſt bee uſed, when by the cutting of a Fiſtula there is feare of greater danger, as of convulſion if the diſeaſe be in a nervous part. In theſe and the like caſes the Chirurgion ſhall not ſet upon the perfect cure of the diſeaſe, but ſhall thinke it better to prevent by all meanes poſſible that the diſeaſe by freſh ſupplies become no worſe, which may bee done if he prevent the falling downe of any new defluxion into the part; if by an artificiall diet hee have a care that excrementitious humors be not too plentifully generated in the body; or ſo order it, that being generated they may be evacuated at certaine times, or elſe diverted from the more noble to the baſe parts. But in the meane ſpace it ſhall be requiſite to waiſt the faulty fleſh, which growes up more than is fitting in the Vlcer, and to clenſe the *ſordes* or filth, with medicines, which may doe it without biting or acrimony and putrefaction.

Cauſticke injections.

Celſus lib. 5.

Remedies for a Fiſtula proceeding from a corrupt bone.

The cure of what Fiſtula's may be attempted, and which may not.

A palliative cure of a Fiſtula.

CHAP. XXIII.

Of the Fiſtula's in the Fundament.

FIſtula's in the Fundament are bred of the ſame cauſes as other kinds of Fiſtula's are; to wit, of a wound or abſceſſe not well cured, or of a hæmorrhoide which is ſuppurated. Such as are occult, may be knowne by dropping downe of the *ſanious* and purulent humor by the Fundament and the

The cauſes.

Signes.

the paine of the adjacent parts. But ſuch as are manifeſt by the helpe of your probe you may finde whither they goe and how farre they reach. For this purpoſe the Chirurgion ſhall put his finger into the Fundament of the patient, and then put a Leaden probe into the orifice of the Fiſtula, which if it come to the finger without interpoſition of any *medium*, it is a ſigne it penetrats into the capacity of the Gut. Beſides alſo then there flowes not onely by the fundament but alſo by the orifice which the maligne humor hath opened by its acrimony, much matter, ſomewhiles ſanious, and oft times alſo breeding Wormes. Fiſtula's may be judged cuniculous, and running into many turnings and windings, if the probe doe not enter farre in, and yet notwithſtanding more matter flowes therehence than reaſon requires ſhould proceede from ſo ſmall an Vlcer.

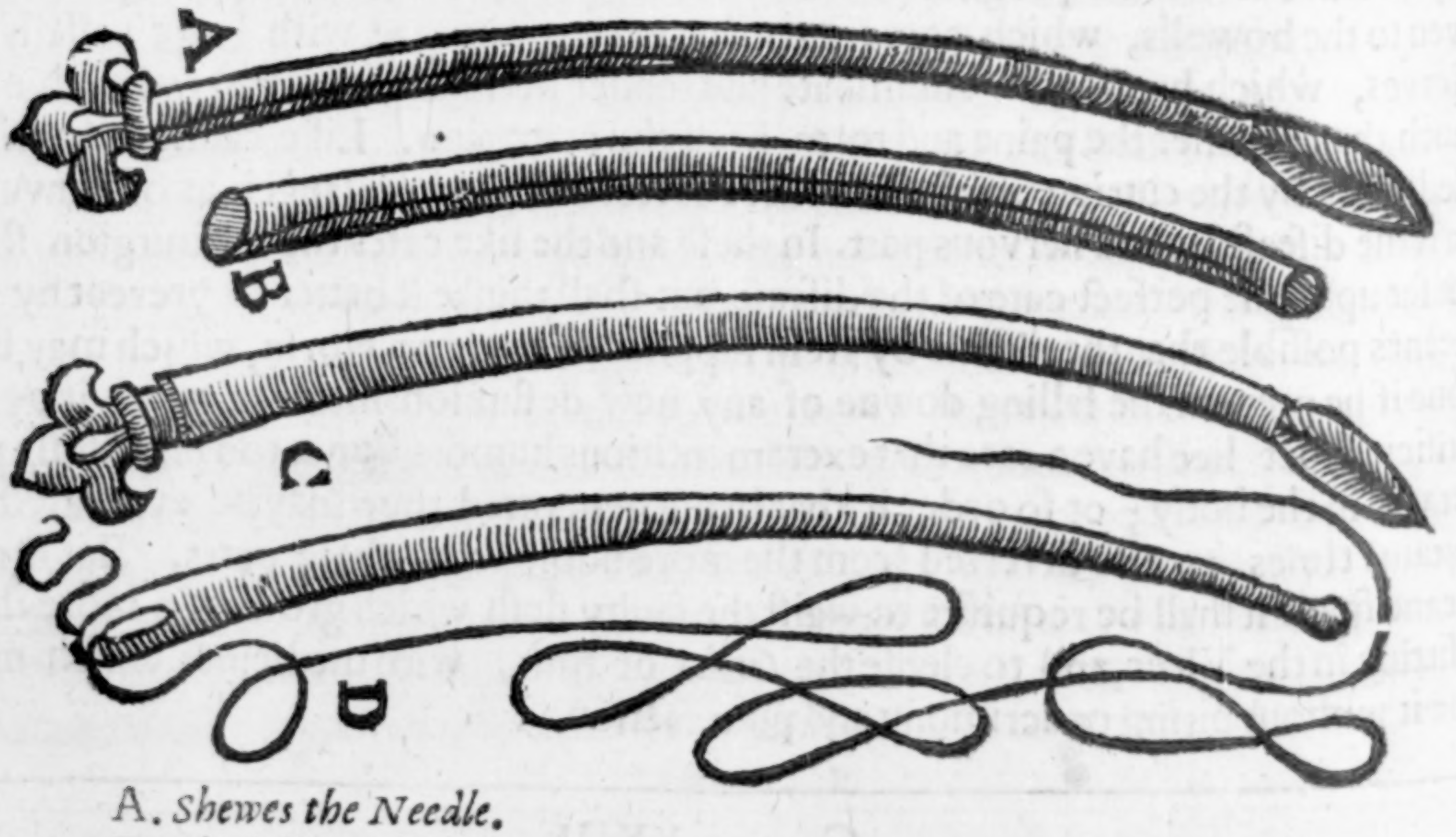
Symptomes.

The art of binding and cutting a Fiſtula of the Fundament.

You may in the orifices of all Fiſtula's, perceive a certaine callous wart, which the common Chirurgions tearme a Hens arſe. Many ſymptomes accompany Fiſtula's which are in the Fundament, as a *Teneſmus*, ſtrangury & falling downe of the Fundament. If the Fuſtula muſt be cured by manuall operation, let the patient lye ſo upon his backe, that lifting up his legges, his thighs may preſſe his belly, then let the Chirurgion, having his naile pared, put his finger beſmeared with ſome oyntment into the patients Fundament; then let him thruſt in at the orifice of the Fiſtula a thick Leaden needle drawing after it a thread conſiſting of thread and horſe haires woven together, and then with his finger taking hold thereof and ſomewhat crooking it, draw it forth at the Fundament, together with the end of the thread. Then let him knit the two ends of the thread with a draw or looſe knot, that ſo hee may ſtraiten them at his pleaſure. But before you bind them you ſhall draw the thread ſomewhat roughly towards you as though you meant to ſaw the fleſh therein conteined; that you may by this meanes cut the Fiſtula without any feare of an Hæmorrhagye, or flux of blood.

It ſometimes happens that ſuch Fiſtula's penetrate not into the Gut; ſo that the finger by interpoſition of ſome callous body cannot meete with the needle or probe. Then it is convenient to put in a hollow iron or ſilver probe ſo through the cavity thereof to thruſt a ſharp pointed needle, and that by pricking and cutting may deſtroy the *callous*; which thing you cannot performe with the formerly deſcribed leaden probe, which hath a blunt point, unleſſe with great paine.

The deſcription of a hollow Silver probe to be uſed with a needle, as alſo a Leaden probe.



A. *Shewes the Needle.*
B. *The hollow probe.*
C. *The needle with the probe.*
D. *The Leaden needle drawing a thread after it.*

The *Callus* being waiſted, the Fiſtula ſhall be bound as wee formerly mentioned That which is ſuperficiary needs no binding, onely it muſt be cut with a croked *ſcalprum*, and the *Callus* being conſumed, the reſt of the cure muſt bee performed afte the manner of other Vlcers. But you muſt note, that if any parcell of the Callous body remaine untoucht by the medicine or inſtrument, the Fiſtula reviving againe will cauſe a relapſe.

CHAP. XXIIII.

Of Hæmorrhoides.

What they are.

HÆmorrhoides, as the word is uſually taken, are tumors at the extremities of the veines encompaſſing the Fundament, cauſed by the defluxion of an humor commonly melancholicke, and repreſenting a certaine kind of *Varices.* Some of theſe run at an hole being opened, which ſometimes in ſpace of time contracts a *Callus*; others onely ſwell, and caſt forth no moiſture; ſome are manifeſt; others lye onely hidde within. Thoſe which runne, commonly caſt forth blood mixed with yellowiſh ſerous moiſture, which ſtimulates the blood to breake forth, and by its acrimony opens the mouthes of the veines. But ſuch as do not run, are eyther like bliſters, ſuch as happen in burnes, and by practitioners are uſually called *veſicales*, and are cauſed by the defluxion of a phlegmaticke and ſerous humor; or elſe repreſent a Grape, whence they are called *Vvales*, generated by the afflux of blood laudible in qualitie, but overaboundant in quantity; or elſe they expreſſe the manner of a diſeaſe, whence they are termed *morales*, proceeding from the ſuppreſſion of melancholicke blood; or elſe they repreſent warts, whence they are ſtiled *Verrucales*, enjoying the ſame materiall cauſe of the generation as the *morales* doe.

Their differences.

Symptomes.

This affect is cauſe of many accidents in men; for the perpetuall effluxe of blood extinguiſheth the vivide and lively colour of the face, calls on a dropſie, overthrowes the ſtrength of the whole body. The fluxe of Hæmorrhoides is commonly every moneth, ſometimes onely foure times in a yeare. Great paine, inflammation, an Abſceſſe which may at length end in a Fiſtula, unleſſe it be reſiſted by convenient remedies, doe oft times forerunne the evacuation of the Hæmorrhoides. But if the Hæmorrhoides flow in a moderate quantity, if the patients brooke it well, they ought not to be ſtayed, for that they free the patients from the feare of imminent evills, as melancholy, leproſie, ſtrangury and the like. Beſides, if they bee ſtopped without a cauſe, they by their refluxe into the Lungs cauſe their inflammation, or elſe breake the veſſells thereof, and by flowing to the Liver cauſe a dropſie by the ſuffocation of the native heate; they cauſe a dropſie and univerſall leaneneſſe on the contrary, if they flow immoderately, by refrigerating the Liver by loſſe of too much blood; wherefore when as they flow too immoderately, they muſt be ſtayed with a pledget of hares downe dipped in the enſuing medicine. ℞. *pul. aloes, thuris, balauſt. ſang. draconis, an* ℥ß. *incorporentur ſimul cum ovi albumine, fiat medicamentum ad uſum.* When they are ſtretched out and ſwollne without bleeding, it is convenient to beate an Onion roaſted in the embers with an Oxes gall, and apply this medicine to the ſwolne places, and renew it every five houres. This kind of remedy is very prevalent for internall Hæmorrhoides; but ſuch as are manifeſt may be opened with horſleaches, or a Lancet. The juyce or maſſe of the hearbe called commonly Dead-nettle or Arkeangell, applyed to the ſwolne Hæmorrhoides opens them, and makes the congealed blood flow there hence. The *Fungus* and *Thymus* being diſeaſes about the fundament are cured by the ſame remedy. If acrimony heate and paine doe too cruelly afflict the patient, you muſt make him enter into a bath, and preſently after apply to the ulcers (if any ſuch be) this following remedy. ℞. *Olei roſ.* ℥iiij. *ceruſſ.* ʒj. *Litharg.* ℥ß *ceræ novæ,* ʒvj. *opij* ℈j. *fiat unguent. ſecundum artem.* Or elſe. ℞ *thuris, myrrhæ, croci, an.* ʒj. *opij* ℈j. *fiat unguentum cum oleo roſarum & mucagine ſem. pſilij, addendo vitellum unius ovi.* You may eaſily proſequute the reſidue of the cure according to the generall rules of Art.

Sent. 37. ſect. 6, epid.

A remedy for the immoderate flowing of the Heamorrhoides.

For ſuppreſt Heamorrhoides.

The end of the Thirteenth Booke.

OF BANDAGES, OR, LIGATURES.

THE FOURTEENTH BOOK.

CHAP. I.

Of the differences of Bandages.

BAndages, wherewith we uſe to binde, doe much differ amongſt themſelves. But their differences (in Galens opinion) are chiefly drawne from ſixe things; to wit, their matter, figure, length, breadth, making, and parts whereof they conſiſt. Now the matter of Bandages is threefold; Membranous or of skinnes, which is accommodated peculiarly to the fractured griſles of the Noſe; of Woollen, proper to inflamed parts, as thoſe which have neede of no aſtriction; of Linnen, as when anie thing is to be faſt bound: and of Linnen cloathes, ſome are made of flaxe, other-ſome of hempe, as Hippocrates obſerves. But Bandages doe thus differ amongſt themſelves in ſtructure, for that ſome thereof conſiſt of that matter which is ſufficiently cloſe and ſtrong of it ſelfe, ſuch are the membranous; others are woven, as the linnen ones. But that Linnen is to bee made choice of for this uſe, and judged the beſt, not which is new and never formerly uſed, but that which hath alreadie beene worne and ſerved for other uſes, that ſo the Bandages made thereof may be the more ſoft and pliable: yet muſt they bee of ſuch strength, that they may not breake with ſtretching, and that they may ſtraitly containe and repell the humour readie to flow downe, and ſo hinder it from entring the part. Theſe, beſides, muſt not bee hemmed nor ſtitched, muſt have no lace nor ſeame; for hems and ſeames by their hardneſſe preſſe into, and hurt the fleſh that lyes under them. Lace, whether in the midſt or edges of the rowler, makes the Ligature unequall. For the Member where it is touched with the Lace, as that which will not yeeld, is preſſed more hard; but with the cloth in the middle more gently, as that which is more laxe. Furthermore, theſe Ligatures muſt bee of cleane cloth, that if occaſion bee, they may bee moyſtened or ſteeped in liquour appropriate to the diſeaſe, and that they may not corrupt, or make worſe that liquour by their moiſtening therein. Now the Bandages which are made of Linnen cloathes muſt be cut long-waies, and not athwart, for ſo they ſhall keepe more firme and ſtrong that which they binde, and beſides, they will be alwaies alike, and not broader in one place than in another. But they thus differ in figure, for that ſome of them are rowled up, to which nothing muſt be ſowed, for that they ought to be of a due length to binde up the member: others are cut or divided, which truly conſiſt of one piece, but that divided in the end (ſuch are uſually taken to bind up the breaſts) or elſe in the midſt; others are ſowed together, which conſiſt of many branches ſowed together, and ending in divers heads, and repreſenting divers figures, ſuch are the Bandages appropriated

Lib. de faſciis.

Sect. 3. de Chir. offic.

What cloth beſt for rowlers.

to the head. But they thus differ in length, for that ſome of them are ſhorter, others longer: ſo in like ſort for breadth; for ſome are broader, others narrower. Yet wee cannot certainly define nor ſet downe neither the length, nor breadth of Rowlers, for that they muſt be various, according to the different length and thickneſſe of the members on parts. Generally they ought both in length and breadth to fit the parts, whereunto they are uſed. For theſe parts require a binding different each from other, the head, the necke, ſhoulders, armes, breaſts, groines, teſticles, fundament, hips, thighes, legs, feet and toes. For the parts of Bandages, wee terme one part their bodie, another their heads. By the bodie we mean their due length & breadth; but their ends, whether they run long-waies or a-croſſe, wee according to Galen, terme them their heads.

Com ad ſect. 22. ſect. 2. de offic. chir.

Chap. II.

Sheweth the indications and generall precepts of fitting of Bandages and Ligatures.

1. & 2. ſect. lib. de fract.

THere are, in Hippocrates opinion, two indications of fitting Bandages or Ligatures; the one whereof is taken from the part affected; the other from the affect it ſelfe. From the part affected: ſo the legge, if you at any time binde it up, muſt bee bound long-waies, for if you binde it overthwart, the binding will looſen as ſoone as the patient beginnes to goe, and put forth his legge, for then the muſcles take upon them another figure. On the contrarie the Arme or Elbow muſt be bound up, bending in and turned to the breaſt, for otherwiſe at the firſt bending, if it bee bound when it is ſtretched forth, the Ligature will be ſlacked, for that (as we formerly ſaid) the figure of the muſcles is perverted. Now for this indication, let each one perſwade himſelfe thus much, That the part muſt be bound up in that figure, wherein wee would have it remaine.

We muſt alwaies begin our ligatures at the bottome of a *ſinus*.

Now for that indication which is drawne from the diſeaſe, if there be a hollow ulcer, ſinuous and cuniculous, caſting forth great ſtore of *Sanies*, then muſt you begin the ligature and binding from the bottome of the *ſinus*, and end at the orifice of the ulcer; and this precept muſt you alwayes obſerve, whether the *ſinus* be ſealed in the top, bottome, middle, or ſides of the ulcer. For thus the filth therein contained ſhall bee emptied and caſt forth, and the lippes of the ulcer too farre ſeparated, ſhall bee joyned together; otherwiſe the contained filth will eate into all that lyes neare it, increaſe the ulcer, and make it uncurable by rotting the bones which lye under it with this acride *ſanies* or filth. But ſome Ligatures are remedies of themſelves, as thoſe which performe their duties of themſelves, and whereto the cure is committed, as are theſe which reſtore to their native unitie, thoſe parts which are diſ-joyned: others are not uſed for their owne ſakes, but only to ſerve to hold faſt ſuch medicines as have a curative facultie. This kinde of Ligature is eyther yet a doing, and is termed by Hippoc. *Deligatio operans*; or elſe done and finiſhed, and is called, *Deligatio operata*: for the firſt, that the Ligature may be well made, it is fit that it be cloſe rowled together, and beſides, that the Surgeon hold it ſtiffe and ſtrait in his hand, and not careleſly, for ſo he ſhall binde up the member the better. Alſo he muſt in the binding obſerve, that the ends of the Rowler, and conſequently their faſtning may not fall to bee on the affected or grieved part; for it is better that they come above or below, or elſe on the ſide: beſides alſo, he muſt have a ſpeciall care that there be no knot tyed upon the ſame place, or upon the region of the backe, buttocks, ſides, joynts, or backe part of the head, or to conclude in any other part upon which the Patient uſes to leane, reſt or lye. Alſo on that part where wee intend to ſow or faſten the Rowlers, you muſt double in their ends, that ſo the faſtning or ſuture may be the ſtronger, otherwiſe how cloſe ſoever they ſhall be wrapped or rowled about the member, yet will they not remaine firme, eſpecially if they be of a great breadth. For the ſecond kinde of Ligature, to wit, that which is already done and finiſhed; the Surgeon, the performer thereof, muſt conſider to what end

Hipp. ſent. 4. ſect. 2. offic.

Initio 2. ſect. off.

it was done, and whether he hath performed it well and fitly, as alſo neatly and elegantly, to the ſatisfaction both of himſelfe and the beholders. For it is the part of a ſkilfull Workeman everie where handſomely and rightly to performe that which may ſo be done.

Ligatures muſt not bee only lightly, but alſo neatly performed.

In fractures and luxations & all diſlocations of bones, as alſo in wounds and contuſions, you muſt beginne your bandage with two or three windings or wraps about upon the place, and that (if you can) more ſtraitly than in other places, that ſo the ſet bones may be the better kept in their places, and that the humors, if anie be alreadie fallen thither, may by this ſtrait compreſſion be preſſed forth, as alſo to hinder and prevent the entrance in of any other which may bee readie to fall down. But in fractures (as thoſe which never happen without contuſion) the blood flowes, and is preſſed forth of its proper veſſels, as thoſe which are violently battered and torne, which cauſes ſugillation in the neighbouring fleſh, which firſt lookes red, but afterwards black and blue by reaſon of the corruption of the blood poured forth under the skinne. Wherefore after theſe firſt windings, which I formerly mentioned, you muſt continue your rowling a great way from the broken or luxated part; he which does otherwiſe, will more and more draw the blood and humors into the affected part, and cauſe Impoſtumes, and other maligne accidents. Now the blood which flowes, goes but one way downwards, but that which is preſſed is carried as it were in two pathes, to wit, from above downwards, and from belowe upwards. Yet you muſt have a care that you rather drive it backe into the body and bowels, than towards the extremities thereof, as being parts which are uncapable of ſo much matter, and not furniſhed with ſufficient ſtrength to ſuffer that burden, which threatens to fall upon it, without danger and the increaſe of prenaturall accidents. But when this maſſe and burden of humors is thruſt backe into the bodie, it is then ruled and kept from doing harme by the ſtrength and benefit of the faculties remaining in the bowels and the native heat.

Gal.com.ad ſent. 25.ſect.1.lib.de fract.

CHAP. III.

Of the three kindes of Bandages neceſſarie in fractures.

TWo ſorts of Ligatures are principally neceſſarie for the Surgeon, according to Hippocrates, by which the bones aſwell broken as diſlocated may be held firme when they are reſtored to their naturall place.

Sent.24.ſect.2. offic.

Of theſe ſome are called *Hypodeſmides*, that is, Under-binders: others, *Epideſmi*, that is, Over-binders. There are ſometimes but two under-binders uſed, but more commonly three. The firſt muſt firſt of all bee caſt over the fracture, and wrapped there ſome three or foure times about, then the Surgeon muſt marke and obſerve the figure of the fracture; for as that ſhall be, ſo muſt he vary the manner of his binding. For the ligature muſt be drawne ſtrait upon the ſide oppoſite to that whereto the luxation or fracture moſt inclines, that ſo the bone which ſtands forth may be forced into its ſeat, and ſo forced may be the more firmely there contained. Therefore if the right ſide be the more prominent or ſtanding forth, thence muſt you beginne your ligation, and ſo draw your ligature to the left ſide. On the contrarie, if the left ſide be more prominent, beginning there, you ſhall goe towards the oppoſite ſide in binding and rowling it. Here therefore would I require a Surgeon to be *Ambidexter*, (.i.) having both his hands at command, that ſo he may the more exquiſitly performe ſuch variety of ligations. But let him in rowling, bend or move this firſt ligature upwards, that is, towards the bodie, for the former reaſons. But neyther is this manner of ligation peculiar to fractures, but common to them with luxations: for, into what part ſoever the luxated bone flew, then when it is reſtored, that ſide muſt be bound the more looſely and gently whence it departed, and that on the contrary more hard unto which it went. Therefore the ligature muſt be drawne from the ſide whereunto the bone went; ſo that on this ſide it bee more looſe and ſoft, and not ſtraitly preſſed with boulſters or rowlers, that ſo it

Hypodeſmides.

may be more inclined to the ſide oppoſite to the luxation. If the ligation be otherwiſe performed, it ſucceeds not well, for the part is relaxed, and moved out of its naturall ſeat: wherefore there will be no ſmall danger, leſt the bone bee forced out againe, and removed from its place, whereinto it was reſtored by art and the hand. Which thing Hippocrates ſo much feared, that on the contrarie he willed that the ſet bone ſhould be drawne ſomewhat more unto the part contrary to that whereunto it was driven by force, than the naturall and proper ſite thereof ſhould require. But to returne to our former diſcourſe of the three Ligatures: The firſt under-binder being put on, wee then take the ſecond, with which wee in like ſort begin at the fracture, but having wrapped it once or twice about there, for that, as we formerly ſaid, wee muſt not force backe, and preſſe ſo much blood towards the extremities, as wee muſt doe towards the body and bowels. Wherefore this Ligature ſhall be drawne from above downe-wards, gently ſtraining it to preſſe forth the blood contained in the wounded part: When by rowling you ſhall come to the end of that part, then you ſhall carry back againe that which remaines thereof, to wit, upwards; But otherwiſe you may take the third under-binder, wherewith you may beginne to rowle, whereas you left with the ſecond, and you may carry it thus, rowling it from below upwards. Theſe under-bindings thus finiſhed, apply your boulſters, after them your over or upper-bindings, which are oft times two, but ſometimes three. The firſt hath two heads, and is wrapped both from the right hand and the left, for the preſervation of the firſt under-binder and the boulſters, and reſtoring the muſcles to their native figure. The two other which remaine, conſiſt of one head, & the one of them muſt be rowled from below upwards, the other from above downwards, after ſuch a manner, that they may bee directly contrary to the under-binders; as if they were rowled from the right hand, then theſe muſt be from the left. Now this is the manner of Hippocrates his Ligation, which, for that it is now growne out of uſe, we muſt here ſet downe that which is in common uſe. They doe not at this time uſe any over-binders, but that which we termed the third under-binder ſerves our Surgeons in ſtead of the three formentioned over-binders. Wherefore they carry this third under-binder, wrapped from below upwards (as we formerly ſaid) contrary to the firſt and ſecond under-binder; as if theſe begunne on the right ſide, this ſhall be rowled from the left, and ſhall end whereas the firſt under-binder ended. And you muſt not only draw it indifferently hard, but alſo make the ſpires and windings more rare. This third rowler is of this uſe in this manner of Ligation, that is, it reſtores the muſcles to their native figure, from whence they were ſomewhat altered by the drawing and rowling of the two former Ligatures. But you muſt alwaies have regard, that you obſerve that meaſure in wrapping your Ligatures, which reaſon, with the ſenſe of the patient, and eaſe in ſuffering, preſcribes; having regard that the tumor become not inflamed. Alſo the habit of the body ought to preſcribe a meaſure in Ligation: for tender bodies cannot away with ſo hard binding as hard. Verily, in fractures and luxations, the humors by too ſtrait binding are preſſed into the extreme parts of the body; whence grievous and oft times enormous Oedema's proceede: for healing whereof the Ligature muſt bee looſed, and then the tumified parts preſſed by a new rowling, which muſt bee performed from below upwards, and ſo, by forcing the matter of the Tumor thither, it may be helped; for there is no other hope or way to drive the humor backe againe. He which doth this, forſakes the proper cure of the diſeaſe, ſo to reſiſt the ſymptome, which the Surgeon ſhall never refuſe to doe, as often as any neceſſarie cauſe ſhall require it. For this cauſe Hippocrates bids, that the Bandages bee looſed everie three dayes, and then to foment the part with hote water, that ſo the humors, which (drawne thither by the vehemency of paine) have ſettled in the part, may be diſſolved and diſperſed; and itching and other ſuch like ſymptomes prevented. The feare of all accidents being paſt, let the Ligation bee ſooner or later looſed, and more ſlacked than it formerly was accuſtomed; that ſo the blood and laudible matter, wherof a *Callus* may enſue, may flow more freely to the affected part.

When the third under-binder is neceſſarie. *Epideſmi.*

The manner of binding now in uſe.

What meane to be obſerved in wrapping the Ligatures.

Why Hippoc. bids to looſe the Ligatures every third day.

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CHAP. IIII.

Of the binding up of Fractures aſſociated with a wound.

How to binde up a Fracture with a wound.

IT ſometimes happens, that a Fracture is aſſociated by a wound, and yet for all this it is fit to binde the part with a Ligature, otherwiſe there will be no ſmall danger of ſwelling, inflammation, and other ill accidents, by reaſon of the too plentifull affluxe of humors from the neighbouring parts. But it is not fit to endeavour to uſe that kinde of binding which is performed with manie circumvolutions or wrappings about. For, ſeeing the wound muſt bee dreſſed everie day, the part muſt each day neceſſarily be ſtirred, and the Ligature, conſiſting of ſo many windings, looſed; which thing will cauſe paine, and conſequently hinder the knitting and uniting which is performed by reſt. Therefore this kinde of binding may be performed by one onely rowling about the wound, and that with a rowler which conſiſts of a twice or thrice doubled cloth, made in manner of a boulſter, and ſewed with as much conveniencie as you can, that it may be ſo large as to encompaſſe and cover all the wound, for theſe reaſons; which ſhall bee delivered at large in our Treatiſe of Fractures. But if the wound runne long-wayes, let the boulſters and ſplints be applyed to the ſides of the wound, that ſo the lipps of the wound may bee preſſed together, and the contained filth preſſed forth. But if it be made over-thwart, we muſt abſtaine from boulſters and ſplints: for that, in Galens opinion, they would dilate the wound, and the purulent matter would be preſſed out, and caſt back into the wound.

Ad ſent. 12. ſect. de fract.

CHAP. V.

Certaine common precepts of the binding up of Fractures and Luxations.

IN everie Fracture and Luxation, the depreſſed, hollow and extenuated parts, ſuch as are neere unto the joynts, ought to be filled up with boulſters, or cloaths put about them, ſo to make the part equall, that ſo they may be equally and on every ſide preſſed by the ſplints, and the bones more firmely contained in their ſeates. So when the knee is bound up, you muſt fill the ham or that cavity which is there, that ſo the ligation may be the better and ſpeedilier performed. The ſame muſt be done under the armepits, above the heele, in the arme neer the wreſt; and, to conclude, in all other parts which have a conſpicuous inequalitie by reaſon of ſome manifeſt cavitie. When you have finiſhed your binding, then enquire of the patient, whether the member ſeeme not to be bound too ſtrait. For if he ſay, that he is unable to endure it ſo hard bound, then muſt the binding be ſomewhat ſlackned. For, too ſtrait binding cauſes paine, heate, defluxion, a gangrene, and laſtly, a ſphacell or mortification: but too looſe is unprofitable, for that it doth not contain the parts in that ſtate we deſire. It is a ſigne of a juſt ligation that is neyther too ſtrait nor too looſe, if the enſuing day the part be ſwolne with an œdematous tumor, cauſed by the blood preſſed forth of the broken place; but of too ſtrait ligation, if the part be hard ſwolne; and of too looſe, if it bee no whit ſwolne, as that which hath preſſed no blood out of the affected part. Now if a hard tumor, cauſed by too ſtrait binding, trouble the patient, it muſt preſently bee looſed, for feare of more grievous ſymptomes, and the part muſt be fomented with warme *Hydræleum,* and another indifferent, yea verily, more looſe ligature muſt be made in ſtead thereof, as long as the paine and inflammation ſhall continue; in which time and for which cauſe, you ſhall lay nothing upon the part which is any thing burdenſome. When the patient beginnes to recover, for three or foure dayes ſpace, eſpecially if you find him of a more compact habit and a ſtrong man, the ligature muſt be kept firme and not looſed. If on the third day, and ſo untill the ſeventh, the ſpires or windings

Hipp. ſent. 37. & 38. ſect. 1. de fract.

The ſignes of too ſtrait and looſe binding up.

Why we muſt make more ſtrait ligation on the broken part.

be found more looſe, and the part affected more ſlender; then wee muſt judge it to be for the better. For hence you may gather, that there is an expreſſion and digeſtion of the humors, cauſing the tumor made by force of the ligation. Verily, broken bones fitly bound up, are better ſet, and more firmely agglutinated, which is the cauſe, why in the place of the fracture the ligation muſt bee made the ſtraiter, in other places more looſely. If the fractured bone ſtand forth in any part, it muſt there be more ſtraitly preſſed with boulſters and ſplints. To conclude, the ſeventh day being paſt, we muſt binde the part more ſtraitly than before: for that then inflammation, paine, and the like accidents, are not to bee feared. But theſe things which we have hitherto ſpoken of the three kindes of Ligatures, cannot take place in each fractured part of the body, as in the chaps, collar-bones, head, noſe, ribs. For, ſeeing ſuch parts are not round and long, a Ligature cannot be wrapped about them, as it may on the armes, thighes, and legges, but only bee put on their outſides.

Chap. VI.

The uſes for which Ligatures ſerve.

The firſt benefit of Ligatures.

The ſecond.

The third.

The fourth.

The fifth.

The ſixth.

The ſeventh.

The eighth, the particular uſe of ligatures in the amputation of members.

BY that which wee have formerly delivered, you may underſtand that Ligatures are of uſe to reſtore thoſe things which are ſeparated and moved forth of their places, and joyne together thoſe which gape; as in fractures, wounds, contuſions, ſinewous ulcers, and other like affects againſt nature, in which the ſolution of continuitie ſtands in neede of the helpe of Bandages, for the reparation thereof. Beſides alſo, by the helpe of Bandages theſe things are kept aſunder or ſeparated, which otherwiſe would grow together, againſt nature; as in Burns, wherein the fingers and the hams would mutually grow together; as alſo the arme-pits to the cheſts, the chin to the breaſt, unleſſe they be hindered by due Ligation. Bandages doe alſo conduce to refreſh emaciated parts: wherefore if the right legge waſte for want of nouriſhment, the left legge, beginning at the foote, may bee conveniently rowled up even to the groine. If the right arme conſume, binde the left with a ſtrait Ligature, beginning at the hand, and ending at the arme-pit. For thus a great portion of blood from the bound-up part is ſent back into the *vena cava*, from whence it regurgitates into the almoſt emptie veſſels of the emaciated part. But I would have the ſound part to bee ſo bound, that thereby it become not painefull; for a dolorifick ligation cauſes a greater attractation of blood and ſpirits, as alſo exerciſe: wherefore I would have it during that time to bee at reſt, and keep holy-day. Ligatures alſo conduce to the ſtopping of bleedings: which you may perceive by this, that when you open a veine with your launcet, the blood is preſently ſtayed, laying on a boulſter and making a ligature. Alſo Ligatures are uſefull for women preſently after their delivery; for their womb being bound about with Ligatures, the blood wherewith their womb was too much moiſtened, is expelled, the ſtrength of the expulſive facultie being by this means ſtirred up to the expulſion thereof: and it alſo hinders the empty wombe from being ſwolne up with winde, which otherwiſe would preſently enter thereinto. This ſame Ligature is a helpe to ſuch as are with childe, for the more eaſie carrying of their burden; eſpecially thoſe whoſe Childe lyes ſo farre down-wards, that lying as it were in the den of the hippes, it hangs betweene the thighes, and ſo hinders the free going of the mother. Therefore the woman with childe is not only eaſed by this binding of her wombe with this Ligature, which is commonly termed, the navill Ligature; but alſo, her childe being held up higher in her wombe, ſhe hath freeer and more liberty to walke. Ligatures are in like ſort good for revulſion and derivation: as alſo for holding of medicines which are layd to a part, as the necke, breaſt or belly. Laſtly, there is a triple uſe of Ligatures in amputation of members, as armes and legges. The firſt to draw and hold upwards the ſkinne and muſcles lying under it, that the operation being performed, they may, by their falling downe againe, cover the ends of the cut-off bones; and ſo by that meanes helpe forwards the agglutination and cicatrization; and when it is healed up, cauſe the lame member to move more freely, and with leſſe paine; and alſo to performe the former actions, this, as it were, cuſhion or boulſter of muſculous fleſh lying thereunder. The ſecond is, they hinder the bleeding by preſſing together the veines and arteries. The third is, they by ſtrait binding intercept the free paſſage of the animall ſpirits, and ſo deprive the part which lyes thereunder of the ſenſe of feeling, by making it, as it were, ſtupid or num.

CHAP. VII.

Of Boulſters or Compreſſes.

The firſt uſe of Boulſters.

Boulſters have a double uſe; the firſt is to fill up the cavities and thoſe parts which are not of an equall thickneſſe to their ends. Wee have examples of cavities in the Arme-pits, Clavicles, Hams & Groines; and of parts which grow ſmall towards their ends, in the armes towards the wreſts, in the legges towards the feet, in the thighes towards the knees. Therefore you muſt fill theſe parts with boulſters and linnen cloathes, that ſo they may be all of one bigneſſe to their ends.

The ſecond uſe of them.

The ſecond uſe of boulſters, is to defend and preſerve the firſt two or three Rowlers or Under-binders, the which we ſayd before muſt be applyed immediately to the fractured part. Boulſters, according to this twofold uſe, differ amongſt themſelves, for that when they are uſed in the firſt mentioned kind, they muſt be applied athwart; but when in the latter, long-wayes or down-right.

The third uſe of them.

You may alſo uſe Boulſters, leſt the too ſtrait binding of the Ligatures cauſe paine and trouble to the new ſet bones. A three or foure times doubled cloth will ſerve for the thickneſſe of your Boulſters, but the length and breadth muſt bee more or leſſe, according to the condition of the parts and diſeaſe for which they muſt be applyed.

CHAP. VIII.

Of the uſe of Splints, Junks, and Caſes.

The matter of Splints.

Having delivered the uſes of Ligatures and Boulſters, it remaines that wee ſay ſomewhat of the other things, which ſerve to hold the bones in their places; as Splints, Junks, Caſes, and ſuch other like. Splints are made and compoſed of paſt-bord, of thin ſplinters of wood, of leather, ſuch as ſhoo-ſoales are made with; of the rindes of trees, or plates of Latin, or lead, and ſuch other like, which have a gentle and yeelding ſtiffeneſſe; yet would I have them made as light as may bee, leſt they by their weight become troubleſome to the affected part. But for their length, breadth, and number, let them be fitted agreeable to the part whereto they muſt bee uſed. Let alſo their figure be ſtraight or crooked according to the condition of the member whereto they muſt be applyed. You muſt have a ſpeciall care, that they runne not ſo farre as the ſwellings out, or eminencies of the bones; as the ancles, knees, elbowes, and the like, leſt they hurt them by their preſſure: alſo you muſt have a care, that they be ſmaller at their ends, and thicker in their middles, whereas they lye upon the broken bone. The uſe of ſplints is, to hold faſt and firme, that they may ſtir no way the broken and luxated bones, after they bee ſet and reſtored to their places. That they performe this uſe, it is fit there be no thicke boulſters under them, nor over many rowlers; for ſo through ſo thick a ſpace, they would not ſo ſtraitly preſſe the part. Junkes are made of ſtickes the bigneſſe of ones finger, wrapped about with ruſhes, and then with linnen cloth: they are principally uſed in fractures

Their uſes.

What Junks are.

of the thighes and legges. Caſes are made of plates of Latin, or elſe of ſome light wood; their uſe is, to containe the bones in their due figure, when the patient is to be carried out of one bed or chamber into another, or elſe hath neede to goe to ſtoole: laſtly, if wee muſt reſt ſomewhat more ſtrongly upon the broken or luxated members, theſe Caſes will hinder the bones from ſtirring or flying out on the right ſide or left, above or below, we ſleeping or waking, being willing or unwilling, and in like ſort leſt being not as yet well knit, or more looſely bound up for feare of paine, inflammation, or a gangrene, they hang downe, fall, or fly in ſunder by reaſon of the inequalities of the bed. Such Caſes, Junkes, and the like, which ſerve for reſtoring and faſt holding of broken and luxated bones, we may, according to Hippocrates his minde, call them in generall *Gloſſocomia.* All which things, the yong Surgeon, which is not as yet exerciſed in the workes of Art, can ſcarce tell what they are. But in the meane time, whileſt that hee may come to bee exerciſed therein, or ſee others performe theſe operations, I, as plainely as poſſibly I could, have in words given him their portraiture or ſhape.

The matter and uſe of Caſes.

Gloſſocomium, a generall name for ſuch things.

The end of the fourteenth Booke.

OF FRACTURES.

THE FIFTEENTH BOOKE.

CHAP. I.

What a Fracture is, and what the differences thereof are.

A Fracture, in Galens opinion, is the ſolution of continuitie in a bone, which by the Greeks is called *Catagma.* There are many ſorts of hurting or offending the bones: as the drawing them aſunder, luxation, or putting them out of joynt; their unnaturall growing together, their cutting or dividing a-ſunder; contuſion, abſceſſe, putrefaction, rottenneſſe, laying bare the *perioſtium* being violated or loſt; and laſtly, that whereof we now treate, a Fracture. Again, the varieties of Fractures are almoſt infinite. For one is complete and perfect, another imperfect; one runnes long-wiſe, another tranſverſe, another oblique; one while it is broken into great peeces, another while into little and ſmall ſcales, which have eyther a blunt, or elſe a ſharpe end, and pricke the adjacent bodies of the muſcles, nerves, veines or arteries. It ſomtimes happens, that the bone is not broken into ſplinters, that is, long-wayes, but together, and at once into two peeces overthwart, which Fracture is called *Raphanedon*, that is, after the maner of a Raddiſh.

Lib.6.method.

What it is for a bone to be broken *Raphanedon.*

A Fracture is made *Caryedon*, or like a nut, when as the bone flyes into many ſmall peeces, ſevered each from other, as when a Nut is broken with a hammer or mallet upon an Anvile: Which fracture is alſo termed *Alphitidon*, by reaſon of the reſemblance it hath to meale or floure; and ſuch is often ſeene in fractures made by bullets, ſhot out of guns and ſuch fiery engines. Contrary to theſe are thoſe fractures which are called *Schidacidon*, as rent into ſplinters, or after the manner of a boord or peece of timber, that is, right-downe, and alongſt the bone: and theſe fractures are eyther apparent to the eye, or elſe not apparent, and therefore called Capillarie, being ſo ſmall, as that they cannot be perceived by the eye, unleſſe you put inke upon them, and then ſhave them with your Scrapers. Sometimes the bone is only preſſed downe by the ſtroke, ſometimes on the contrarie it flyes up, as if it were vaulted. They call it attrition, when the bone is broken into many ſmall fragments, and as it were ſcales or chips. The fragments of fractured bones are ſomtimes ſmooth and poliſhed, otherwhiles unequall, and as it were ſharpe and rough with little teeth, or prickes. Some fractures touch onely the ſurface of the bone, fetching off only a ſcale; otherſome change not the ſite of fractured bones, but only cleaves them length-waies, without the plucking away of any fragment; otherſome penetrate even to their marrow.

What *Caryedon*, or *Alphitidon.*

What *Schidacidon.*

Furthermore ſome Fractures are ſimple and alone by themſelves; otherſome are accompanied with a troop of other affects and ſymptomes; as a wound, hæmorrhagye, inflammation, gangrene, and the like. Hereunto you may alſo adde the differences drawne from the parts which the Fractures poſſeſſe; as from the head, ribs, limbs, joynts, and other members of the bodie. Adde alſo theſe which are taken from the habit of bodies, aged, young, full of ill humors, well tempered; almoſt all which have their proper and peculiar indications for curing. Now the cauſes of Fractures, are the too violent aſſaults or ſtroaks of all externall things, which may cut, bruiſe, breake, or ſhake: in this number of cauſes may alſo be reckoned fals from high places, and infinite other things, which would be long and tedious to reckon up.

The cauſes of fractures.

Chap. II.

Of the ſignes of a Fracture.

WE may know by evident ſignes that a bone is broken: the firſt whereof, and moſt certaine, is, when by handling the part which we ſuſpect to be broken, wee feele peeces of the bone ſevered aſunder, and heare a certaine crackling of theſe peeces under our hands, cauſed by the attrition of the ſhattered bones. Another ſigne is taken from the impotencie of the part, which chiefly bewrayes its ſelfe, when both the bones, the legge, and brace-bones, the ell and wand are broken. For if onely the brace-bone or wand be broken, the Patient may goe on his legge, and ſtirre his arme: for the brace-bone ſerves for the ſuſtaining of the muſcles, and not of the bodie, as the legge bone doth. The third ſigne is drawne from the figure of the part changed beſides nature: for it is there hollow, from whence the bone is flowne or gone, but gibbous or bunching out whither it is runne. Great paine in the interim torments the patient by reaſon of the wronged *perioſtium*, and that membrane which involves the marrow and the ſympathie of the adjacent parts which are compreſſed or pricked.

The firſt ſigne of a broken bone.

Another.

A third.

Chap. III.

Of Prognoſticks to be made in Fractures.

WEe muſt prognoſticate in Fractures, whether they are to end in the deſtruction or welfare of the patient; or whether their cure ſhall be long or ſhort, eaſie, or elſe difficult and dangerous; and laſtly, what accidents and ſymptomes may happen thereupon. Hee ſhall eaſily attaine to the knowledge of all theſe things, who is not onely well ſeene in the anatomicall deſcription of the bones, but alſo in the temper, compoſition and complexion of the whole bodie. Wherefore in the firſt place, I thinke good to admoniſh the Surgeon of this, that in winter when all is ſtiffe with cold, by a little fall, or ſome ſuch ſleight occaſion, the bones may be quickly and readily broken. For then the bones, being dryed by the drineſſe of the ayre encompaſſing us, become more brittle; which everie one of the Vulgar uſually obſerve to happen both in waxen and tallow candles: but when the ſeaſon is moiſt, the bones are alſo more moiſt, and therefore more flexible and yeelding to the violence of the obvious and offending bodie. Wherefore alſo you may gather this to the framing of your Prognoſticks, That bones by reaſon of their naturall drineſſe are not ſo eaſily agglutinated and conſolidated as fleſh; though in Children, according to Galen, by reaſon of the abundance of their humiditie, the loſt ſubſtance may bee repaired, according (as they terme it) to the firſt intention, that is, by reſtoring of the ſame kinde of ſubſtance or matter. But in others, about the Fractures a certaine hard ſubſtance uſually concreats, of that nouriſhment of the broken bone which abounds, which glues together the fragments thereof, being fitly put together. This ſubſtance is then termed a *Callus*, and it is ſo hardened in time, that the bone thereafter in the broken

Why bones are more brittle in froſtie weather.

Why the ſolution of continuity in bones is not ſo eaſily repaired.
Gal. in arte par.

broken part is ſeene to be more firme and hard than it is in any other: therefore that uſuall ſaying in Phyſicke is not without reaſon; That reſt is neceſſarie for the uniting of broken bones. For the *Callus* is eaſily diſſolved, if they bee moved before their perfect and ſolid agglutination. The matter of a *Callus* ought to be indifferent and laudible in quantitie and qualitie, even as blood which flowes for the regeneration of the loſt fleſh in wounds. It is fit, that there may be ſufficient matter for ſuch a *Callus*, that the part have a laudible temper, otherwiſe there either wil be no *Callus*, or certainly it wil grow more ſlowly. Fractures are far more eaſily repaired in yong bodies than in old: for in theſe there is plentie of the primigenious and radicall moiſture, that is laudably holding and glutinous; and in the other there is ſtore of watriſh and excrementitious. By this you may eaſily conjecture, that you cannot certainely ſet downe a time neceſſarie for the generating a *Callus*: for in ſome it happens later, in ſome ſooner: the cauſe of which varietie is alſo to be referred to the conſtitution of the yeare and region, the temper and diet of the Patient, and maner of Ligation. For, thoſe Patients whoſe powers are weake, and blood watriſh and thin, in theſe the generation of a *Callus* uſes to be more ſlow: On the contrarie, ſtrong powers haſten to agglutinate the bones, if there be plentie of groſſe and viſcous matter; whereby it comes to paſſe, that meats of groſſer nutriment are to bee uſed, and medicines applyed which may helpe forwards the endeavour of nature, as we ſhall declare hereafter. When the bones are broken neare unto the joynts, the motion afterwards uſes to be more difficult, eſpecially if the *Callus*, which is ſubſtituted, be ſomewhat thicke and bunching forth. But if, together with the violence and force of the Fracture, the joynts ſhall bee broken and bruiſed, the motion will not only bee loſt, but the life brought in danger, by reaſon of the greatneſſe of the inflammation, which uſually happens in ſuch affects, and the exceſſe of paine in a tendinous body. Theſe fractures wherein both the bones of the arme or legge are broken, are more difficult to cure, than thoſe which happen but to one of them. For they are handled & kept in their places with more difficulty, becauſe that which remaines whole, ſerves the other for a reſt or ſtay to which it may leane. Moreover, there is longer time required to ſubſtitute a *Callus* to a great bone, than to a little one. Againe theſe bones which are more rare and ſpongie, are ſooner glued together by the interpoſition of a *Callus*, than theſe which are denſe and ſolid. A *Callus* ſooner growes in ſanguine, than in cholerick bodies. But broken bones cannot be ſo happily agglutinated, nor reſtored in any body, but that alwaies ſome aſperity or unequall protuberancie may bee ſeene on that part where the *Callus* is generated. Wherfore the Surgeon ought to make artificiall Ligations, that the *Callus* may not ſtand out too far, nor ſinke downe too low. That Fracture is leaſt troubleſome which is ſimple; on the contrarie, that is more troubleſome which is made into ſplinters; but that is moſt troubleſome and worſt of all which is in ſmall and ſharp fragments, becauſe there is danger of convulſion by pricking a nerve, or the *perioſtium*. Sometimes the fragments of a broken bone keep themſelves in their due place: they alſo oft times fly forth thereof, ſo that one of them gets above another; which when it happens, you may perceive an inequality by the depreſſion of the one part and the bunching forth of the other, as alſo paine by the pricking: beſides alſo the member is made ſhorter than it was, and than the ſound member on the oppoſite ſide is, and more ſwolne by the contraction of the muſcles towards their originall. Wherefore when a bone is broken, if you perceive anie thing ſo depreſſed, preſently putting your hand on both ſides above and below, ſtretch forth the bone as forcibly as you can; for otherwiſe, the muſcles and nerves, ſtretched and contracted, will never of their owne accord ſuffer the bones to be reſtored to their proper ſeat and themſelves. This extenſion muſt bee performed in the firſt dayes, for afterwards there will happen inflammation: which being preſent, it is dangerous to draw the nerves and tendons too violently; for hence would enſue an impoſtume, convulſion, gangrene and mortification. Therefore Hippocrates forbids you to defer ſuch extenſion untill the third, or fourth day. Fractures are thought dangerous, whoſe fragments are great, and fly out, eſpecially in theſe bones which are filled with marrow on the inſide. When broken or diſlocated bones cannot be

reſtored

Why bones ſooner knit in yong bodies.

Meats of groſſe and tough nouriſhment conduce to the generation of a *Callus*.

Fractures at joynts dangerous.

Hipp. ſect. 18. & 19. ſect. 1. de fracturis.

Ligations conduce to the handſomnes of a *Callus*.

Extenſion muſt preſently bee made after the bone is broken.

Sent. 36 ſect. 3. de fract.

reſtored to themſelves and their naturall place, the part waſts for want of nouriſhment; both for that the naturall ſite of the veines, arteries and nerves is perverted, as alſo becauſe the part it ſelfe lyes immoveable, or ſcarce moveable: whereby it commeth to paſſe, that the ſpirits doe not freely flow thereto, as neyther the nutritive juice commeth thither in ſufficient plentie. When the diſlocated or broken member is troubled with any great inflammation, it is doubtfull whether or no a convulſion will happen, if wee attempt to reſtore it, or the parts thereof to their ſeat: therefore it is better, if it may bee done, to deferre the reducing thereof ſo long, untill the humor which poſſeſſes the part be diſſolved, the tumor abated, and the bitterneſſe of paine mitigated.

In inflammations the reſtoring of the bone muſt not bee attempted.

CHAP. IV.

The generall cure of broken and diſlocated bones.

Three things to be performed in curing broken and diſlocated bones.

How to put the bones in their places.

Hipp. ſent. 60. ſect. 2. de fract.

Ad ſent. 1. ſect. 1. de fract.

When inſtruments or engins are neceſſary.

TO cure a broken and diſlocated bone, is to reſtore it to its former figure and ſite. For the performance whereof, the Surgeon muſt propoſe three things to himſelfe: The firſt is, to reſtore the bone to its place: The ſecond is, that he containe or ſtay it being ſo reſtored: The third is, that he hinder the increaſe of maligne ſymptomes and accidents; or elſe if they doe happen, that then he temper and correct their preſent malignitie. Such accidents are paine, inflammation, a feaver, abſceſſe, gangrene and ſphacell. For the firſt intention, you may eaſily reſtore a broken or diſlocated bone, if preſently, as ſoon as the miſchance is got, or elſe the ſame day, you endeavour to reſtore it: for the bitterneſſe of paine or inflammation, which may trouble the patient, is not as yet verie great, neyther is the contraction of the muſcles upwards as yet very much or ſtubborne. Therefore firſt of all, the Patient with his whole bodie, but eſpecially with the broken or diſlocated part, as alſo the Surgeon, muſt bee in ſome place which hath good and ſufficient light. Then let truſty and skilfull attendants be there, good ligatures, and alſo, if need ſo require, good engines. His friends which are preſent, let them ſee and hold their peace, neyther ſay, nor do any thing which may hinder the Worke of the Surgeon. Then putting one hand above, that is, towards the center of the body, and the other below, as neare as hee can to the part affected, let him ſtretch forth the member: for if you lay your hand any diſtance from the part affected, you wil hurt the ſound part by too much compreſſion, neyther will you much avayle your ſelfe by ſtretching it at ſuch a diſtance. But if you only endeavour below with your hand or ligature, aſſiſting to make extenſion thereof, it will be dangerous if there bee nothing above which may withſtand or hold, leſt that you draw the whole bodie to you. This being done, according as I have delivered, it is fit the Surgeon make a right or ſtraight extenſion of the part affected: for when the bone is eyther broken or out of joynt, there is a contraction of the muſcles towards their originall, and conſequently of the bones by them, as it is obſerved by Galen. Wherefore it is impoſſible to reſtore the bones to their former ſeat, without the extenſion of the muſcles. But the part being thus extended, the broken bones will ſooner and more eaſily be reſtored to their former ſeate. Which being reſtored, you ſhall preſently with your hand preſſe it downe, if there be any thing that bunches or ſtands out. And laſtly, you ſhall binde it up, by applying boulſters and ſplints as ſhall bee fit. But if the bone bee diſlocated or forth of joynt, then preſently after the extenſion thereof, it will be requiſite to bend it ſomwhat about, and ſo to draw it in. The Surgeon is ſometimes forced to uſe engines for this worke, eſpecially if the luxation be inveterate, if the broken or luxated bones be great; and that in ſtrong and ruſtick bodies, and ſuch as have large joynts: for that then there is need of greater ſtrength, than is in the hand of the Surgeon alone. For, by how much the muſcles of the Patient are the ſtronger, by ſo much will they bee contracted more powerfully upwards towards their originals. Yet have a care that you extend them not too violently, leſt by rending and breaking aſunder the muſcles and nerves, you cauſe the forementioned ſymptomes, paine, convulſion, a palſie and gangrene: all which ſooner happen to ſtrong and aged bodies, than to children, eunuches, women, youthes, and generally all moyſt bodies, for that they are leſſe hurt by violent extenſion and pulling, by reaſon of their native and much humiditie and ſoftneſſe.

What bodies are ſooner hurt by violent extenſion.

For thus skins of leather, moyſtened with any liquor, are eaſily retched and drawn out as one pleaſeth: but ſuch as are dry & hard, being leſſe tractable, will ſooner rend and teare, than ſtretch further out. Therefore the Surgeon ſhall uſe a meane in extending and drawing forth of members, as ſhall be moſt agreeable to the habits of the bodies.

Signes of a bone well ſet.

You may know the bone is ſet, and the ſetting performed as is fit, if the paine be aſſwaged; to wit, the fibres of the muſcles, and the other parts being reſtored to their former ſite, and all compreſſion, which the bones moved out of their places have made, being taken away; if, to your feeling there bee nothing bunching out, nor rugged, but the ſurface of the member remaine ſmooth and equall; and laſtly, if the broken or diſlocated member compares with its oppoſite in the compoſure of the joynts, as the knees and ancles anſwer juſtly and equally in length and thickneſſe. For which purpoſe it muſt not ſuffice the Surgeon to view it once, but even as often as he ſhall dreſſe it.

Cauſes and ſignes of the relapſe of a ſet bone.

For it may happen, that the bone which is well ſet, may by ſome chance, as by the Patients unconſiderate turning himſelfe in his bed, or as it were a convulſive twitching of the members or joynts whileſt he ſleepes, the muſcles of their owne accord contracting themſelves towards their originals, that the member may againe fall out; and it will give manifeſt ſignes thereof by renewing the paine, by preſſing or pricking the adjacent bodies: which paine will not ceaſe, before it bee reſtored to its place: and hereof the Surgeon ought to have diligent care. For if, whileſt the *Callus* is in growing, one bone ride over another, the bone it ſelfe will afterwards be ſo much the ſhorter, and conſequently the whole member; ſo that if this errour ſhall happen in a broken legge, the Patient will halt ever after, to his great griefe, and the Surgeons ſhame. Wherefore the Patient ſhall take heed, as much as in him lyes, that he ſtirre not the broken member, before that the *Callus* be hardened. Such diligent care needes not bee had in diſlocations. For theſe once ſet, and artificially bound up, doe not afterwards ſo eaſily fall forth as broken bones.

The ſecond ſcope is, that the bones which ſhall be reſtored may bee firmely kept in their ſtate and place. That ſhall be done by Bandages; as ligatures, boulſters, and other things, whereof hereafter we ſhall make particular mention. Hither tend proper and fit medicines, to wit, applying of oyle of Roſes with the whites of Egges, and the like repelling things; and then reſolving medicines, as the preſent neceſſity ſhall require. It will be convenient, to moyſten your rowlers and boulſters in oxycrate for this purpoſe, or elſe in Roſe vinegar, if the Fracture be ſimple, or with red wine, or the like liquor warme (in Galens opinion) if a wound bee joyned to the fracture; and it will be fit to moyſten fractures oftner in Summer: For ſo the part is ſtrengthened, the defluxion being repelled, whereby the inflammation and paine are hindred. You muſt deſiſt from humecting and watering the part when the ſymptomes are paſt, leſt you retard the generating of a *Callus*; for which you muſt labour by theſe meanes which wee ſhall hereafter declare. To this purpoſe alſo conduces the reſt and lying of the part in its proper figure and ſite accuſtomed in health, that ſo it may the longer remaine in the ſame place unſtirred. Beſides alſo, it is expedient then only to dreſſe the part, when it is needfull, & with thoſe things that are requiſite, ſhunning, as much as may be, inflammation and paine. That figure is thought the beſt, which is the middle, that is, which containes the muſcles in their ſite, which is without paine; ſo that the Patient may long endure it without labour or trouble. All theſe thing being performed, the Patient muſt be asked, Whether the member be bound up too ſtrait? If hee anſwer, No, (unleſſe peradventure a little upon the fracture or luxation, for there it is fit it ſhould bee more ſtraitly bound) then may you know that the binding is moderate. And this ſame firſt ligation is to bee kept in fractures without looſing for three or foure dayes ſpace, unleſſe peradventure paine urge you to the contrary. In diſlocations the ſame binding may bee kept for ſeven or eight daies, unleſſe by chance ſome ſymptome may happen, which may force us to open it before that time: for the

Ad ſent. 21 ſect. 1. de fract.

What the middle figure is, and why beſt.

Fit time for looſing of Ligatures in fractures and diſlocations.

the Surgeon muſt with all his art have a care to prohibite the happening of evill accidents and ſymptomes, which, how he may bring to paſſe, ſhall bee declared in the following Chapter.

Chap. V.

By what meanes you may performe the third intention in curing fractures and diſlocations, which is, the hindring and correction of accidents and ſymptomes.

Foure choice meanes to hinder accidents.

The cauſes and differences of itching.

Ad ſent.4.ſect. 1. de fract.

Remedies againſt the itching.

Hipp. ſent. 46. ſect.3.de fract.

THat we may attaine unto this third ſcope, it is requiſite we handle as gently and without paine, as we may, the broken or diſlocated member; we drive away the defluxion ready to fall downe upon the part by medicines, repelling the humour, and ſtrengthning the part; wee, by appointing a good diet, hinder the begetting of excrements in the bodie, and divert them by purging and phlebotomie. But if theſe accidents be already preſent, we muſt cure them according to the kinde and nature of each of them: for they are various. Amongſt which is reckoned itching, which in the beginning torments the Patient: this ariſeth from a collection and ſuppreſſion of ſubacride vapours, ariſing from the blood, and other humors under the skin. Whence a light biting, which cauſeth a ſimple itch, or elſe a more grievous and acride one, from whence (in Galens opinion) proceeds a painefull itching. Wherefore ſuch matter, as the cauſe, being evacuated, all itching ceaſeth. But this cannot eaſily and freely be evacuated and breathed out, becauſe the pores of the part are ſhut up, and as it were oppreſſed with the burden of the emplaiſters, boulſters, and ligatures, which are put about the part. Hereunto may be added, that the part its ſelfe doth not ſo perfectly performe and enjoy its wonted faculties and actions: by which it commeth to paſſe, that the heat thereof is more languide than may ſuffice to diſcuſſe the fuliginous matter there collected. Wherefore it will be convenient to looſe the ligatures everie third day, that, as by looſing their tyes, their ſanious and fuliginous excrements, ſhut up under the skinne, may freely paſſe forth, leſt in continuance they ſhould fret and ulcerate it; as it happens to moſt of thoſe who provide not for it by looſing their ligatures. Beſides alſo, the part muſt bee long fomented with hote water alone, or elſe with a decoction of ſage, chamomile, roſes, and melilote made in wine and water: for long fomenting attenuates and evacuates, but ſhorter fils and mollifies, as it is delivered by Hippocrates. Alſo gentle frictions, performed with your hand, or a warme linnen cloath upwards, to the right ſide and left, and circularly to everie ſide, are good. But if the skinne be already riſen into bliſters, they muſt be cut, leſt the matter contained thereunder may corrode and ulcerate the skinne: then muſt the skinne be annointed with ſome cooling and drying medicine; as, *Ung. album Camphoratum Rhaſis, Deſiccativum rubrum, unguentum roſatum ſine aceto*; adding thereto the pouder of a rotten poſte, or prepared *Tutia*, or the like. Other accidents more grievous than theſe, doe often happen, but we will treat of them hereafter. But if the ſcales of the bone underneath bee quite ſevered from the whole, then muſt they be preſently taken forth, eſpecially if they prick the muſcles: But if the bone be broken into ſplinters, and ſo prominent out of the wounded fleſh as that it cannot be reſtored into its ſeat, it muſt be cut off with your cutting mallets, or parrats beake, as occaſion ſhall offer its ſelfe. In the interim, you muſt have a care that the part enjoy perſpiration, and by change of place and riſing, now and then it may be as it were ventilated: alſo you muſt ſee that it be not over-burdened, neyther too ſtrait bound, otherwiſe it will be apt to inflammation. Thus much concerning fractures and diſlocations in generall: now we muſt deſcend to particulars, beginning with a fracture of the Noſe.

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CHAP.

CHAP. VI.

Of the Fracture of the Noſe.

THe Noſe is griſtly in its lower part, but bony in the upper. Wherfore it ſuffers no fracture in the griſtly part (unleſs peradventure a *Sedes*) but only a depreſſion, diſtortion or contuſion. But a fracture often happens to the bony part, & ſo great a depreſſion to the inner ſide, that unleſſe it be provided for by diligent reſtoring it, the noſe will become flat, or wreſted aſide, whence there will be difficulty of breathing. That this kinde of fracture may be reſtored, that bone which ſtands too farre out muſt be preſſed downe; but that which is depreſt, muſt be lifted up with a ſpatherne, or little ſticke handſomely faſhioned and wrapped about with cotten or a linnen ragge, ſo to avoyd paine. Therefore you ſhall hold the ſpatherne in one hand, and reduce and order it with the other. The bone being reſtored, directories or tents of a convenient bigneſſe ſhall be put into the noſe; which tents ſhall bee made of ſponge, or flaxe, or a peece of a beaſts or ſheeps lungs. For theſe things are ſoft, and doe not onely hinder the bones of the Noſe that they fall no more, but alſo lift them up higher. And then the Noſe ſhall be in ſome ſort ſtayed with boulſters on each ſide, even untill the perfect agglutination of the bones, leſt the figure and ſtraitneſſe ſhould be vitiated and ſpoyled. I have oft times put golden, ſilver and leaden pipes into fractured noſes, and faſtned them with a thred to the Patients night cap, which, by one and the ſame means, kept the bones from being again depreſt, gave the matter free paſſage forth, and nothing hindred the breathing. In the mean time we muſt ſee, that we do not preſſe the Noſe with too ſtrait binding, unleſſe peradventure ſome other thing perſwade; leſt they become eyther too wide, too flat, or crooked. If any wound accompany the fracture, that ſhall bee cured after the ſame manner, as the wounds of the head. The fracture reſtored, the following medicine, which hath a facultie to repell and repreſſe the defluxion, to ſtrengthen and keep the part in its due poſture, and to dry up and waſte the matter which hath alreadie fallen downe, ſhall bee applyed to the Noſe, and all the other dry parts.

Hipp.ſent.46. ſect.2.de art.

How to reduce the noſe into its naturall figure.

℞. *thuris, maſtiches, boli armeniæ, ſanguinis draconis. an.* ℥ß. *aluminis rochæ, reſinæ pini. an.* ℥ ij. *pulveriſentur ſubtiliſsimè:* Or elſe, ℞. *farinæ volatilis* ℥ß. *albuminum ovorum quantum ſufficit, incorporentur ſimul, & fiat medicamentum.*

A fit aſtringent and drying medicine.

Neither ſhall you uſe any other art to cure the cartilagineous part of the noſe being fractured. Wherefore Hippocrates termes that ſolution of continuitie that there happens, A fracture, as if it were in a bone; becauſe hee could finde no other name more fitly to expreſſe it: for a griſtle, next to a bone, is the hardeſt of all the parts of our bodie. A *Callus* uſes to grow in fractured noſes, unleſſe ſomething hinder within the ſpace of twelve or fifteene dayes.

Sent.47. ſect.2. de art. & Gal. in Com.

CHAP. VII.

Of the Fracture of the lower Jaw.

THe lower Jaw runnes into two, as it were, horns or tops: the one whereof ends ſharpe, and receives a tendon from the temporall muſcle; the other ends blunt and round under the mammillarie proceſſe, and it is there implanted in a ſmall cavitie; it is joyned together in the middle of the chin by *Symphyſis*, and is marrowie within. The Fracture, which happens thereto, is reſtored by putting your fingers into the Patients mouth, and preſſing them on the inſide and outſide, that ſo the fractured bones put together may be ſmoothed and united. But if they be broken wholly athwart, ſo that the bones lye over each other, extenſion muſt be made on both ſides on contrary parts, upwards and downwards, whereby the bones may be compoſed and joy-

A deſcription of the lower Jaw.

The manner of reſtoring a broken Jaw.

ned more eaſily to one another. The teeth in the meane while, if they be eyther ſhaken or removed out of their ſockets, muſt be reſtored to their former places, and tyed with a gold or ſilver wyar, or elſe an ordinary threed, to the next firme teeth, untill ſuch time as they ſhall be faſtened, and the bones perfectly knit by a *Callus*. To which purpoſe the ordered fragments of the fractured bone ſhall bee ſtayed, by putting a ſplint on the outſide, made of ſuch leather as ſhoe ſoales are made; the midſt thereof being divided at the Chin, and of ſuch length and breadth as may ſerve the Jaw: then you ſhall make ligation with a ligature two fingers broad, and of ſuch length as ſhall be ſufficient, divided at both the ends, and cut longwaies in the midſt thereof; that ſo it may engirt the chin on both ſides. Then there will be foure heads of ſuch a ligature ſo divided at the ends; the two lower whereof being brought to the crown of the head, ſhall bee there faſtened and ſowed to the Patients night-cap. The two upper drawne athwart ſhall likewiſe be ſowed as artificially as may bee, to the cap in the nappe of the necke. It is a moſt certaine ſigne, that the Jaw is reſtored and well ſet, if the teeth faſtened therein ſtand in their due ranke and order. The patient ſhall not lye downe upon his broken jaw, leſt the fragments of the bones ſhould againe fall out, and cauſe a greater defluxion. Unleſſe inflammation, or ſome other grievous ſymptome, ſhall happen, it is ſtrengthned with a *Callus* within twentie dayes; for that it is ſpongious, hollow, and full of marrow, eſpecially in the midſt thereof: yet ſometimes, it heales more ſlowly, according as the temper of the patient is, which takes alſo place in other fractured bones. The agglutinating and repelling medicine, deſcribed in the former chapter, ſhall be uſed; as alſo others, as occaſion ſhall offer it ſelfe. The Patient muſt be fed with liquid meats, which ſtand not in need of chewing, untill ſuch time as the *Callus* ſhall grow hard, leſt the ſcarce or ill-joyned fragments ſhould fly inſunder with the labour of chewing. Therefore ſhall hee bee nouriſhed with water-grewell, ponadoes, cullaſſes, barley creames, gellies, brothes, reare egges, reſtaurative liquors, and other things of the like nature.

The deſcription of a fit ligature for the under Jaw.

In what time it may be healed.

CHAP. VIII.

Of the Fracture of the Clavicle or Collar-bone.

Hipp.ſent.63 ſect. 1.de art.

AS the nature and kinde of the fractured Clavicle ſhall bee, ſo muſt the cure and reſtoring thereof bee performed. But howſoever this bone ſhall be broken, alwaies the end faſtened to the ſhoulder and ſhoulder-blade, is lower than that which is joyned to the cheſt; for that the arme drawes it downe-wards. The collar-bone, if broken athwart, is more eaſily reſtored and healed, than if it be cloven long-wayes. For, everie bone broken athwart doth more eaſily returne into its former ſtate or ſeat, whiles you lift it up on this or that ſide with your fingers. But that which is broken *ſchidacidon*, or into ſplinters, or long-waies, is more difficultly joyned and united to the ends and fragments: for thoſe peeces, which were ſet, will be plucked aſunder, even by the leaſt motion of the armes; and that which was knit with the ſhoulder, will fall downe to the lower part of the breaſt. The reaſon of which is, the Collar-bone is not moved of its ſelfe, but conſents in motion with the arme. In reſtoring this or any other fracture, you muſt have a care that the bones ride not one over another, neyther be drawn nor depart too far in ſunder: therfore it will be here convenient, that one ſervant draw the arme backwards, and another pull the ſhoulder towards him the contrarie way; for ſo there will be made, as I may ſo terme it, a counter-extenſion. While which is in doing, the Surgeon with his fingers ſhall reſtore the fracture, preſſing downe that which ſtood up too high, and lifting up that which is preſſed downe too low. Some, that they may more eaſily reſtore this kinde of fracture, put a clew of yarne under the Patients arme-pit; ſo to fill up the cavity thereof: then they forcibly preſſe the elbow to the ribs, and then force the bone into its former ſeat. But if it happen, that the ends of the broken bones ſhall bee ſo

How to reſtore the fractured Clavicle. The firſt way.

The ſecond way.

The third way.

depreſt, that they cannot be drawn upwards by the forementioned means: then muſt the Patient be layd with his backe, juſt betweene the ſhoulders, upon a pillow hard ſtuffed, or a tray turned with the bottome upwards, and covered with a rugge or ſome ſuch thing. Then the ſervant ſhall ſo long preſſe downe the Patients ſhoulders with his hands, untill the ends of the bones, lying hid and preſſed downe, fly out and ſhew themſelves. Which being done, the Surgeon may eaſily reſtore or ſet the fractured bone. But if the bone be broken ſo into ſplinters that it cannot bee reſtored, and any of the ſplinters pricke and wound the fleſh, and ſo cauſe difficultie of breathing, you then muſt cut the ſkinne even againſt them, and with your inſtrument lift up all the depreſſed ſplinters, and cut off their ſharp points; ſo to prevent all deadly accidents, which thereupon may bee feared. If there be many fragments, they, after they are ſet, ſhall be covered with a knitting medicine made of wheat floure, frankincenſe, bole armenicke, *ſanguis draconis*, *reſina pini*, made into powder, and mixed with the whites of egges, putting upon it ſplints, covered with ſoft worne linnen raggs; covered over likewiſe with the ſame medicine, and then three boulſters dipped in the ſame; two whereof ſhall be layd upon the ſides, but the third and thickeſt upon the prominent fracture, ſo to repreſſe it and hold it in. For thus the fragments ſhall not be able to ſtirre or lift themſelves up further than they ſhould, eyther to the right ſide or left. Now theſe Boulſters muſt be of a convenient thickneſſe and breadth, ſufficient to fill up the cavities which are above and below that bone. Then ſhall you make fit ligation with a rowler, having a double head caſt croſſe-wiſe, of a hands breadth, and ſome two ells and a halfe long, more or leſs, according to the Patients bodie. Now hee ſhall be ſo rowled up, as it may draw his arme ſomewhat backwards, and in the interim his arme-pits ſhall be filled with boulſters, eſpecially that next the broken bone; for ſo the Patient may more eaſily ſuffer the binding. Alſo you ſhall wiſh the Patient, that he of himſelfe bend his arme backewards, and ſet his hand upon his hip, as the Countrey Clownes uſe to doe, when they play at leap-frogge. But how great diligence ſoever you uſe in curing this ſort of fracture, yet can it ſcarce be ſo performed, but that there will ſome deformity remaine in the part: for that a ligature cannot be rowled about the collar-bone, as it may about a legge or an arme. A *Callus* oft times growes on this bone, within the ſpace of twenty daies, becauſe it is rare and ſpongious.

How to binde up the fractured clavicle.

It is a difficult matter perfectly to reſtore a fractured clavicle.

CHAP. IX.

Of the fracture of the ſhoulder-blade.

THe Greeks call that *Omoplata*, which the Latines terme *Scapula*, or *Scapulæ patella*, that is, the ſhoulder-blade. It is faſtened on the backe to the ribs, nowle, the *Vertebræ* of the cheſt and necke; but not by articulation, but only by the interpoſition of muſcles, of which wee have ſpoken in our Anatomie. But on the forepart it is articulated after the manner of other bones with the collar-bone, the ſhoulder, or arme-bone: for with its proceſſe, which repreſents a pricke or thorne, and by ſome, for that it is more long and prominent, is called *Acromion*, (that is, as you would ſay, the top or ſpire of the ſaid ſhoulder-blade) it receives the Collar-bone. Therefore ſome Anatomiſts, according to Hippocrates as they ſuppoſe, call all this articulation of the Collar-bone with the hollowed proceſſe of the ſhoulder-blade, *Acromion*. There is another proceſſe of the ſaid Blade-bone, called *Cervix omoplatæ*, or the necke of the Shoulder-blade: this truely is very ſhort, but ending in a broad and ſinuated head, provided for the receiving of the Shoulder or arme-bone. Not farre from this proceſſe is another, called *Coracoides*, for that the end thereof is crooked like a Crowes beake. This keeps the ſhoulder bone in its place, and conduces to the ſtrength of that part. The ſhoulder-blade may be fractured in any part thereof, that is, eyther on the ridge, which runnes like a hill, alongſt the midſt thereof, for its ſafety, as wee ſee in the *Vertebræ* of the backe. So alſo in the broader part thereof it may bee thruſt in and

An anatomicall deſcription of the ſhoulder-blade.

How many waies the ſhoulder-blade may be broken.

depreſt; and alſo in that articulation, whereby the top of the ſhoulder is knit to it. According to this variety of theſe fractured parts, the happening accidents are more grievous or gentle.

Wee know the ſpine or ridge of the Shoulder-blade to be broken, when a dolorificke inequalitie is perceived by touching or feeling it. But you may know, that the broader or thinner part thereof is depreſſed, if you feele a cavity, and a pricking paine moleſt the part, and if a nnmneſſe trouble the arme, being ſtretched forth. The fragments, if they yet ſticke to their bone, and doe not pricke the fleſh, muſt be reſtored to their ſtate and place, and there kept with agglutinative medicines, and ſuch as generate a *Callus*, as alſo with boulſters and rowlers fitted to the place. But if they doe not adhere to the bone, or pricke the fleſh lying under them, then muſt you make inciſion in the fleſh over againſt them, that ſo you may take them out with your Crowes beake. But although they ſtirre up and downe, yet if they ſtill adhere to the *perioſtium* and ligaments, (if ſo be that they trouble not the muſcles by pricking them) then muſt they not bee taken forth: for I have oftner than once obſerved, that they have within ſome ſhort time after growne to the adjacent bones. But if they, being wholly ſeparated, doe not ſo much as adhere to the *perioſtium*, then muſt they neceſſarily be plucked away; otherwiſe within ſome ſhort ſpace after, they will be driven forth by the ſtrength of nature, for that they participate not any more in life with the whole. For that which is quicke, ſaith Hippocrates, uſes to expell that which is dead farre from it. The truth whereof was manifeſted in the Marques of Villars, who at the battell of Dreux was wounded in his ſhoulder with a piſtoll bullet, certaine ſplinters of the broken bone were plucked forth with the peeces of his harneſſe, and of the leaden bullet; and within ſome ſhort ſpace after, the wound was cicatrized, and fully and perfectly healed. But more than ſeven yeares after, a defluxion and inflammation ariſing in that place by reaſon of his labour in armes, and the heavineſſe of his armour at the battell of Mont-contour, the wound broke open againe; ſo that many ſhivers of the bone, with the reſidue of the leaden bullet, came forth of themſelves. But if the fracture ſhall happen in the necke of the ſhoulder blade or dearticulation of the ſhoulder, there is ſcarce any hope of recovery; as I have obſerved in Anthony of Burbon, King of Navarre; Francis of Lorraine, Duke of Guiſe; the Count Rhingrave Philibert, and many other in theſe late civill warrs. For there are many large veſſels about this dearticulation, to wit, the axillary veine and arterie, the nerves ariſing from the *Vertebræ* of the necke, which are thence diſſeminated into all the muſcles of the arme. Beſides, alſo inflammation and putrefaction ariſing there are eaſily communicated by reaſon of their neighbour-hood to the heart and other principall parts, whence grievous ſymptomes, and oft times death it ſelfe, enſues.

The cure.

Lib. de vuln. Capitis.
A hiſtorie.

Nature of its owne accord makes it ſelfe way to caſt forth ſtrange bodies and matters.

Why a fracture in the joynt of the ſhoulder is deadly.

Chap. X.

Of the fracture and depreſſion of the Sternon, *or Breaſt-bone.*

The *Sternum* is ſometimes broken, otherwiles onely thruſt in without a fracture. The inequality perceivable by your feeling, ſhews a fracture, as alſo the going in with a thruſt with your finger, and the ſound or noiſe of the bones crackling under your fingers. But a manifeſt cavity in the part, a cough, ſpitting of blood, and difficultie of breathing by compreſſion of the membrane inveſting the ribs and the lungs, argue the depreſſion thereof. For the reſtoring of this bone, whether broken or depreſt, the patient muſt be layd on his backe, with a cuſhion ſtuffed with tow or hay under the *vertebræ* of the backe, as we ſet downe in the ſetting of the Collar-bone. Then a ſervant ſhall lye ſtrongly with both his hands on his ſhoulders, as if he would preſſe them downe, whilſt the Surgeon, in the meane time preſſing the ribs on each ſide, ſhall reſtore and ſet the bone with his hand; and then the formerly deſcribed medicines ſhall bee applyed for to hinder inflammation, and aſſwage paine; boulſters ſhall bee fitted thereto,

Signes that the *ſternum* is broken.

Signes that it is depreſt.

The cure.

and a ligature ſhall bee made croſſe-wayes above the ſhoulders, but that not too ſtrait, leſt it hinder the Patients breathing. I by theſe meanes, at the appointment of Anthony of Burbon King of Navarre, cured Anthony Benand a Knight of the Order, who had his breaſt-plate bended and driven in, with an iron bullet ſhot out of a Field-Peece, as alſo his *ſternum* together therewith, and he fell down as dead with the blow; he did ſpit blood for three months after I had ſet the bone: yet for all this he lives at this day in perfect health.

A hiſtorie.

CHAP. XI.

Of the fracture of the ribs.

THe true ribs, for that they are bonie, may be broken in any part of them. But the baſtard ribs cannot be truly broken unleſſe at the backe bone, becauſe they are onely bonie in that part, but griſtly on the foreſide towards the breaſt-bone, wherefore there they can only be folded or crooked in. Theſe which are ſubject to fractures, may be broken inwards and outwards. But oft times it comes to paſſe, that they are not abſolutely broken, but cleft into ſplinters, and that ſometimes inwards, but not outwards. Thus the fiſſure doth ofttimes not exceede the middle ſubſtance of the rib, but ſometimes it ſo breakes through it all, that the fragments and ſplinters do prick and wound the membrane, which inveſts and lines them on the inſide, and then there is great danger. But when the fracture is ſimple without a wound, compreſſion, puncture of the membrane, and laſtly, without any other ſymptome; then the danger is leſſe. Therefore Hippocrates wiſheth, that theſe, who are thus affected, fill themſelves more freely with meat; for that moderate repletion of the belly, is (as it were) a certaine prop or ſtay for the ribs, keeping them well in their place and ſtate: which rule chiefly takes place in fractures of the baſtard ribs. For ſuch as have them broken, uſually feele themſelves better after, than before meat. For emptineſſe of meat, or of the ſtomack, makes a ſuſpenſion of the ribs, as not underpropped by the meat. Now that fracture which is outwardly, is farre more eaſie to heale, than that which is inwardly; for that this pricketh the membrane or *Pleura*, and cauſeth inflammation, which may eaſily end in an *Empyema*. Adde hereunto, that this is not ſo eaſily to be handled or dealt withall, as the other: whereby it commeth to paſſe, that it cannot be ſo eaſily reſtored; for that theſe things cannot bee ſo fully and freely performed in this kinde of fracture, which are neceſſary to the ſetting of the bone, as to draw it out, hold it and joyne it together. It is therefore healed within twenty dayes, if nothing elſe hinder. The ſignes of fractured ribs are not obſcure; for by feeling the grieved part with your fingers, you may eaſily perceive the fracture by the inequalitie of the bones, and their noyſe or crackling, eſpecially, if they bee quite broke aſunder. But if a rib be broken on the inſide, a pricking paine, far more grievous than in a Pleuriſie, troubles the Patient; becauſe the ſharp ſplinters pricke the Coſtall membrane: whence great difficulty in breathing, a cough and ſpitting of blood enſue. For blood, flowing from the veſſels broken by the violence of the thing cauſing the fracture, is (as it were) ſucked up by the lungs, and ſo by a dry cough carried into the weazond, and at length ſpit out of the mouth. Some, to pull up the bone that is quite broken and depreſt, apply a cupping glaſſe, and that is ill done: for there is cauſed greater attraction of humors, and exceſſe of paine by the preſſure and contraction of the adjacent parts, by the cupping-glaſſe; wherefore Hippocrates alſo forbids it. Therefore it is better to endeavour to reſtore it after this following manner. Let the Patient lye upon his ſound ſide, and let there be layd upon the fractured ſide an emplaiſter made of Turpentine, roſin, black pitch, wheat floure, maſtick and aloes, and ſpread upon a ſtrong and new cloath. When it hath ſtucke there ſome time, then plucke it ſuddenly with great violence from below upwards: for ſo the rib will follow together therewith, and bee plucked and drawne upwards. It is not ſufficient to have done this once, but you

In what place the ſhort ribs may be broken.

Sent. 56. ſect. 3. de art.

Why an internall fracture of the ribs is deadly.

The ſignes.

The cauſe of ſpitting blood when the ribs are broken.

Sent. 51. ſect. 3. de art.
Paulus lib. 6. cap. 96.
Avicen. 4.

The cure.

muſt doe it often, untill ſuch time as the Patient ſhall finde himſelfe better, and to breathe more eaſily. There will be much more hope of reſtitution, if, whileſt the Surgeon doe this diligently, the Patient forbeare coughing, and hold his breath. Otherwiſe, if neceſſitie urge, as if ſharpe ſplinters with moſt bitter tormenting paine pricke the Coſtall membrane overſpred with many nerves, veines, and arteries, which run under the ribs, whence difficultie of breathing, ſpitting of blood, a cough and fever enſue; then the only way to deliver the Patient from danger of imminent death, is, to make inciſion on the part, where the rib is broken, that ſo laying it bare, you may diſcerne the pricking fragments, and take them out with your inſtrument, or elſe cut them off. And if you make a great wound by inciſion, then ſhall you ſew it up, and cure it according to the common rules of curing wounds. Now Diet, Phlebotomie and Purgation, which (as Hippocrates ſaith) are not very needfull in a ſimple fracture, for that there are no ſymptomes, which may require ſuch remedies; yet, they, by reaſon of the complicated ſymptomes, as a convulſion, feaver, *Empyema*, and the like, muſt here be preſcribed, by the advice of the Phyſician which over-ſees the cure. A Cerate, and other remedies fitting the occaſion, ſhall be applyed to the grieved part: no other ligatures can be uſed, than ſuch as are fit to hold faſt and ſtay the locall medicines. There is no other rule of ſite and lying, than ſuch as is taken from the will and content of the Patient.

A ſimple fracture may be cured onely by Surgerie.

Chap. XII.

Of certaine preternaturall affects which enſue upon broken ribs.

Many ſymptomes enſue upon fractured and contuſed ribs: but amongſt the reſt, there are two which are not common, whereof we will treate in this place. The firſt is, the inflation, or riſing up of the contuſed fleſh, which alſo enſues upon light affects of the bone, which have bin neglected at the beginning. But the fleſh is not meerly puffed up of its ſelfe, but alſo with a certaine phlegmatick, glutinous and viſcous humour gathering thereinto. The cauſe hereof is, the weakneſſe of the digeſtive facultie of the part, occaſioned by the ſtroake and diſtemper; which therefore cannot aſſimulate the nouriſhment flowing more plentifully than it was wont, eyther drawne thither by means of the pain, or ſent thither by a blinde violence of nature, ſtirred thereto by a deſire of its own preſervation. Wherfore this halfe crude humor remaining there, raiſeth much flatuling from its ſelfe, or elſe wrought upon by the weaker heat, it is reſolved into cloudy vapours; whence it commeth to paſſe, that the fleſh is ſwolne up in that place, and the ſkinne on the contrary growes ſoft, as if it were blowne up with a quill. Therefore laying your hand thereon, you may heare the noyſe of the winde going forth thereof, and ſee a cavity left in the part, as it is uſually ſeene in œdematous tumors. Unleſſe you remedie this inflation, there will enſue an inflammation, fever, abſceſſe, difficulty of breathing; and laſtly, that ſecond kinde of affect, whereof we have determined to treat in this Chapter, to wit, the putrefaction, corruption, or blaſting of the ribs. An abſceſſe, and the ſeparation of the fleſh from the bone, is the cauſe hereof: for hence it commeth to paſſe, that the bone, deſpoyled of its naturall and fleſhly cloathing wherewith it was cheriſhed, is eaſily offended by the touch of the entring ayre, which it never formerly felt, and ſo at length it becommeth (as it were) blaſted: which when it happens, they ſpit up filth, and ſo fall into a conſumption, and at length dye. To withſtand all theſe inconveniencies, you muſt, as ſpeedily as you can, reſtore the fractured bones by the formerly delivered meanes. And then this mucous tumor muſt be reſolved by proper heating and diſcuſſing medicines, and kept downe by boulſters and rowlers; that ſo the fleſh may touch the bone, and cover it as it uſually did. But the ligature ſhall not be made ſo ſtrait, as to hinder the ribs from their wonted motion in expiration and inſpiration. If the tumor degenerate into an Abſceſſe, it ſhalbe ſpeedily opened, leſt

The cauſe.

The ſignes.

The cure.

leſt the matter, kept in too long, corrupt the bone which lyes under it, by the contagion of its putrefaction. The Ulcer being opened, the matter ſhall bee evacuated by putting a pipe into the ulcer; the end whereof ſhalbe bound about with a thred, leſt it fall into the capacity of the cheſt, and that it may bee drawne forth at your pleaſure.

CHAP. XIII.

Of the fracture of the Vertebræ, *or Rack bones of the backe, and of their proceſſes.*

THe *Vertebræ* are ſome-whiles broken, otherwhiles bruiſed, or ſtrained on the inſide, wherby it commeth to paſſe, that the membranes which inveſt the ſpinall marrow, as alſo the ſpinall marrow its ſelfe, are compreſſed and ſtraitened, which cauſe many maligne accidents; which, whether they be curable or not, may be certainly foretold by their magnitude. Amongſt theſe ſymptomes, are the ſtupidity, or numneſſe and palſie of the armes, legges, fundament and bladder, which diminiſh, or elſe take away from them the facultie of ſenſe and motion; ſo that their urine and excrements come from them againſt their wils and knowledge, or elſe are wholly ſuppreſt. Which when they happen (ſaith Hippocrates) you may fore-tell that death is at hand, by reaſon that the ſpinall marrow is hurt. Having made ſuch a prognoſticke, you may make an inciſion, ſo to take forth the ſplinters of the broken *vertebræ*, which, driven in, preſſe the ſpinall marrow, and the nerves thereof. If you cannot doe this, at leaſt you ſhall apply ſuch medicines as may aſſwage paine, and hinder inflammation; and then the broken bones ſhall be reſtored to their places, and contained therein by thoſe meanes which we ſhall mention when we come to treat of the luxation of the ſpine. But if that the proceſſes onely of the *vertebræ* be broken, the fragments ſhall be put in their places, unleſſe they bee quite ſevered from their *perioſtium*. But if they bee ſevered, you ſhall open the skinne and take them forth, and then dreſſe the wound as is fit. Wee underſtand, that onely the proceſſes of the *vertebræ* are broken, if, in the abſence of the fore-mentioned ſymptomes of numnes and the palſey, you, laying your finger upon the grieved part, feele ſomething, as a bony fragment, ſhaking and moving thereunder, with a certaine crackling noyſe, and cavitie, and depreſſion; and then, if when the Patient holds downe his head, and bends his backe, hee feele farre more paine, than when hee ſtands up ſtraight on his feete. For in ſtooping, the skinne of the backe is ſomewhat ſtretched forth, and extended, and alſo forced upon the ſharpe Splinters of the fragments, whence proceedes a dolorificke ſolution of continuitie, and a pricking: in ſtanding ſtraight up, on the contrary, the ſtretched skinne is relaxed, and conſequently leſſe moleſted by the ſharpe fragments. The fractured proceſſes of the *vertebræ* eaſily heale, unleſſe they bee aſſociated with ſome other more grievous ſymptome which may hinder; ſuch as is a certaine great contuſion, and the like. For, as wee formerly ſayd out of Hippocrates, All rare and ſpongie bones are knit by a *Callus* within a few dayes.

The affects of the *vertebræ*.

Sect. 2. Prorh.

The cure of fractured *Vertebræ*.

The cure of the proceſſes.

Signes that onely the proceſſes are fractured.

Chap. XIV.

Of the fracture of the holy-bone.

What fracture of the Holy-bone curable and what not.

ALſo the Holy-bone in a certaine part thereof, which may be eaſily healed, may be broken by the blow of bruiſing things, as by a bullet ſhot out of a musket, as I have obſerved in many. But if the fracture violate, together with the *vertebræ* thereof, the ſpinall marrow contained therein, then the Patient can ſcarce ſcape death, for the reaſons ſhewed in the former Chapter.

Chap. XV.

Of the fracture of the Rumpe.

The deſcription of the rump.

THe Rumpe is compoſed of foure bones: the firſt whereof hath a cavitie, wherein it receives the loweſt *vertebra* of the Holy-bone: the other three are joyned together by *Symphyſis* or Coalition; at the end of theſe hangs a certaine ſmall griſtle. The fracture of theſe bones ſhall be cured by putting your finger into the Patients fundament, and ſo thruſting it even to the fractured place. For, thus you may thruſt the fragment forth, and fit and reſtore it to the reſt of the bones by your other hand lying upon the backe. But that it may be the ſooner healed, it is fit the Patient keep his bed, during all the time of the cure. But if there be a neceſſitie to riſe, hee ſhall ſo ſit in a perforated ſeat, that there may bee nothing which may preſſe the broken part; and fitting remedies for healing fractures ſhall be applyed, as occaſion ſhall offer its ſelfe.

The cure.

Chap. XVI.

Of the fracture of the Hip, or Os Ilium.

The deſcription of the Hip.

THe Hip conſiſts of three bones: The firſt is named *Os Ilium*, the Haunch-bone; the other, *Os Iſchion*, the Huckle bone; the third, *Os pubis*, the Share-bone. Theſe three bones in men of full growth, are ſo faſt knit and joyned together, that they can by no meanes be ſeparated; but in children they may be ſeparated without much adoe. This bone may be broken in any part thereof, either by a ſtroake, or by a fall from high upon any hard bodie. You ſhall know the fracture by the ſame kinde of ſignes, as you know others, to wit, paine, pricking, a depreſſed cavitie, and inequalitie, and alſo a numneſſe of the legge of the ſame ſide. The ſplinters of the bones (if quite broke off) muſt by making inciſion be taken away at the firſt dreſſing: in performance of which operation, you muſt have a care, that you hurt not with your inſtrument the heads of the muſcles, nor any veſſels, eſpecially which are great; nor laſtly, that large nerve which is ſent into the muſcles of the thigh and legge. On the contrary, ſuch fragments as are not broken or ſevered from their *perioſtium*, ſhall bee ſmoothed and ſet in order with your fingers, as is fitting. Other things ſhall be done according as art and neceſſity ſhall perſwade and require.

The ſignes.

The cure.

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Chap. XVII.

Of a fracture of the Shoulder, or Arme-bone.

The deſcription of the arme or ſhoulder-bone.

THe Arme-bone is round, hollow, full of marrow, riſing up with an indifferent necke, and ending on the upper part into ſomewhat a thick head. On the lower part it hath two proceſſes, the one before, the other behinde: between which there is (as it were) an halfe circle, or the cavity of a pulley, each end whereof leads into its cavitie, of which one is interior, another exterior; that by theſe (as it were) hollow ſtops, the bending and extenſion of the arme might bee limited: leſt that the bone of the cubite, if the circle ſhould have beene perfect, ſliding equally this way and that way, might, by its turning, have gone quite round, as a rope runnes in a pulley; which thing would much have confuſed the motion of the Cubite. For ſo the extenſion, or bending it backe, would have beene equall to the neceſſarie bending it inwards. It is very expedient that a Surgeon know theſe things, that ſo hee may the better know how to reſtore the fractures and luxations of this part.

The cure.

If one of the fragments of this broken bone ſhall lye much over the other, and the patient have a good ſtrong bodie, then the arme ſhall be much extended, the Patient being ſo ſet upon a lowe ſeat, that he may not riſe, when the fracture ſhall bee a-ſetting, and ſo hinder the begunne worke; and alſo, that ſo the Surgeon may the more eaſily performe his operation upon the Patient ſeated under him: yet Hippocrates, regarding another thing, would have the Patient to ſit higher. But you muſt have a care, that the ſhoulder-bone it ſelfe be drawne directly down-wards, and the cubit ſo bended as when you put it into a ſcarſe. For if any one ſet this bone, lifting the arme upwards, or otherwiſe extending it, then muſt it be kept in that poſture: for otherwiſe, if the figure be changed, the ſetting will quickly bee ſpoyled, when as you come to put the arme in a ſcarſe.

How the arme muſt be placed when the bone is ſet.

Wherefore the Surgeon muſt diligently and carefully obſerve, that in ſetting a broken arme, hee put it in ſuch a poſture, that reſting on the breaſt, it looke downe towards the girdle. You muſt have a care in laying the ſplints, and rowling your ligatures, that they hurt not, nor preſſe too hard upon the joynts.

Sect.3. offic. ſect.1. de fract.

For, in the opinion of Hippocrates, by the preſſure of parts which are nervous, fleſhleſſe, and conſequently endued with exquiſite ſenſe, by the ſplints there is danger of moſt grievous paine, inflammation, denudation both of the bone and nerve; but chiefly, if ſuch compreſſion hurt the inner part, towards which the arme is bended: wherefore the ſplints made for this place muſt bee the ſhorter. Therefore, after the Arme-bone is ſet, the arme ſhall bee layd upon the breaſt in a right angle, and there bound up in a ſcarſe, leſt that the Patient, when he hath neede to ſtirre, ſpoyle and undoe the ſetting, and figure of the broken bone.

In what time it will knit.

But the arme muſt be kept in quiet, untill ſuch time as the fragments ſhall bee confirmed with a *Callus*, which uſually is in fortie dayes, ſooner or later, according to the different conſtitutions of bodies.

Chap. XVIII.

Of the fracture of the Cubit, or the Ell and Wand.

The differences.

IT ſometimes happeneth, that the Cubite and Wand are broken together and at once, and otherwhiles that but the one of them is fractured. Now they are broken eyther in their midſt or ends; their ends (I ſay) which are eyther towards the elbow, or elſe towards the wreſt. That fracture is worſt of all, wherein both the bones are broken, for then the member is made wholly impotent to performe any ſort of action, and the cure is alſo more difficult; for the member cannot ſo eaſily be contained in its ſtate: for that bone which remaines whole, ſerves

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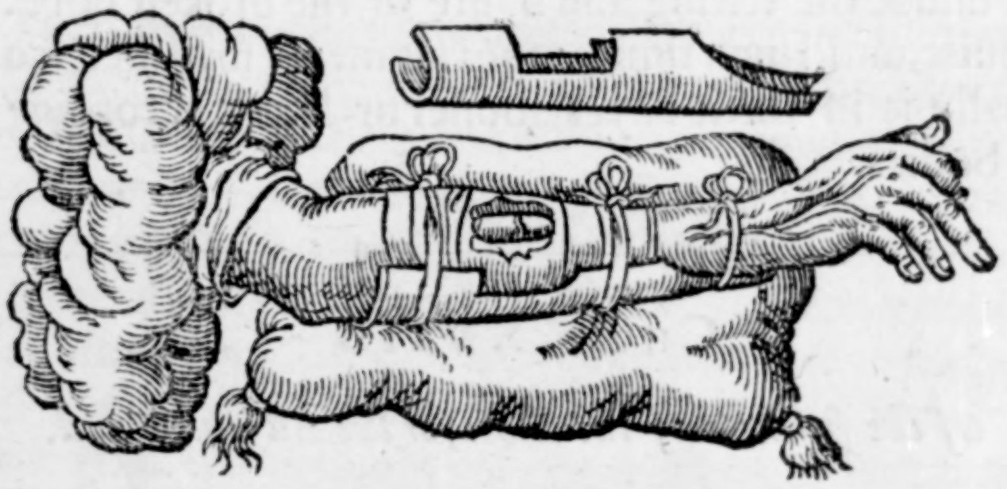
The cure.

Sent.3.ſect.1. de fract.

Com. in lib. de art.

for a ſtay to the arme, and hinders the muſcles from being drawn backe, which uſually draw backe and ſhrinke up themſelves, whenſoever both bones are broken. Hence it is, that that fracture is judged the worſt, wherein the Cubit or Ell bone is broken. But that is eaſieſt of all, wherein onely the Wand is broken, for ſo the fractured part is ſuſtained by the Ell-bone: When both the bones are broken, there muſt bee made a ſtronger extenſion, for that the muſcles are the more contracted. Therefore, whenſoever eyther of them remaines whole, it doth more ſervice in ſuſtaining the other, than any eyther ligatures or ſplints, for that it keeps the muſcles right in their places. Wherefore, after the bones ſhal be ſet and rowled up with ligatures and ſplints, the arme muſt bee ſo carried up in a ſcarfe put about the necke, that the hand may not be much higher than the elbow, leſt the blood and other humors may fall downe thereinto. But the hand ſhall be ſet in that poſture which is betweene prone and ſupine, for ſo the Wand ſhall lye directly under the Ell, as we have read it obſerved by Hippocrates. The reaſon is, for that by a ſupine figure or ſituation, both the bone and muſcles are perverted: for firſt, for the bone, the *Apophyſis, ſtyloides* and *Olecranum* of the Cubit, ought to be in an equall plaine, and to be ſeated each againſt other; which is not ſo in a ſupine figure, as wherein the *Proceſſus ſtyloides* of the Cubit is ſet againſt the inner proceſſe of the arme bone. But in muſcles, for that, like as the inſertion and ſite of the head of a muſcle is, ſuch alſo is the ſite of the belly thereof, and laſtly, ſuch the inſertion of the tayle thereof; but by a ſupine figure, the muſcles ariſing from the inner proceſſe of the arme-bone and bending the cubit, ſhall have their tayle placed in an higher and more exteriour ſite. In the *interim*, you muſt not omit, but that the Patients arme may, with as little paine as poſſibly you can, be bended and extended now and then, leſt by the too long reſt of the tyed up part, and the intermiſſion of its proper function, the bones of the joynt may be ſowdred together by the interpoſition, and as it were glue of the defluxion which fals abundantly into the joynt of the Ell-bow, and neighbouring parts, whence the ſtiffeneſſe and unmoveableneſſe thereof, as if there were a *Callus* growne there: from whence it may happen, that the arme thereafter may neither be bended, nor extended, which I have obſerved to have happened to many. Whereof alſo Galen makes mention, and cals this kinde of vitiated conformation *Ancyle* and *Ancyloſis*. If a wound alſo aſſociate a fracture of the arme, then ſee, that you put about it plates of Latin, or Paſt-bord, and make a convenient Ligature, and that the fragments of the bones be kept in the ſame ſtate wherein they were ſet and reſtored. Moreover, let him lay his arme upon a ſoft pillow or cuſhion, as the following Figure ſhewes you.

The figure of a fractured Arme, with a wound bound up, and ſeated, as is fit.



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Chap. XIX.

Of the fracture of a Hand.

The bones of the Wreſt, and After-wreſt, may bee broken: but, in Hippocrates opinion, chiefly by that kind of fracture which is called a *Sedes*; now if they ſhal happen to be broken, this ſhal be the maner of reſtoring them. Let the Patient lay forth his hand upon ſome even and ſmooth table, then let your ſervant ſtretch forth the broken bones, & the workmaſter reſtore them thus extended, and put them in their proper ſeats. But being reſtored, they muſt be kept in their places by ſuch remedies as are uſed in other fractures; to wit, cerates, compreſſes, linnen clothes, and ſplints. Now the fractured fingers ſhall be tyed or bound to their neighbours, that ſo they may the more eaſily, as bound to a ſtake, be kept in that ſtate wherein they have been put by the hand of the Workeman. But theſe bones, ſeeing they are of a rare and ſpongie nature, are in a ſhort time and eaſily ſtrengthened, or knit by a *Callus*. Theſe things being done, the hollowneſſe or palme of the hand ſhall be filled with a Tennis ball, for thus the broken bones ſhall not only be more eaſily kept in their places, but alſo the fingers themſelves ſhall be kept in a middle poſture, that is, not wholly open, nor quite ſhut. If they be kept in any other figure, the enſuing *Callus* will either deprave or quite aboliſh that action of the hand, wherby we take hold of any thing. The caſe ſtands otherwiſe with the fractured Toes; for they ſhall bee kept ſtraight and even out, leſt they ſhould hinder our going or ſtanding.

Sect.2.de fract. ſent.9.

The cure.

To what purpoſe the carrying of a ball in a fractured hand ſerves.

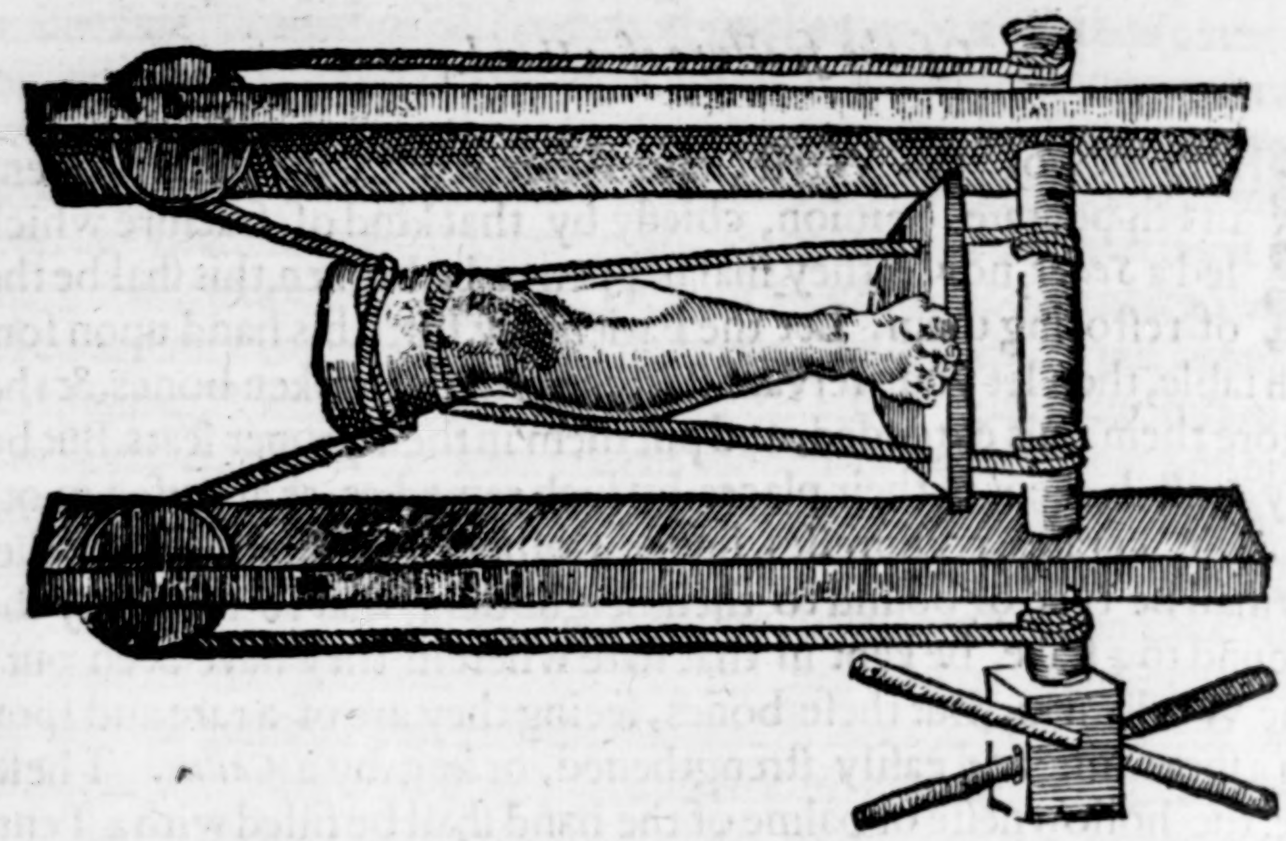
Chap. XX.

Of the fracture of a Thigh.

It is a hard thing to bring the fragments of the broken thigh together to be ſet, by reaſon of the large and ſtrong muſcles of that part; which whileſt they are drawne backe towards their originall, by a motion both naturall and convulſive, they carry together with them the fragment of the bone, whereinto they are inſerted. Therefore, when as the fracture of this bone ſhall be reſtored, the Patient muſt lye upon his back with his legge ſtretched forth, and the Surgeon muſt ſtrongly and with great force extend the thigh; but if he alone ſhall not be able ſufficiently to extend it, he ſhall imploy two other ſtrong attendants, by whoſe joynt-helpe the fragments may be fitted and ſet each againſt other. For this purpoſe, when as the ſtrength of the hand was not ſufficient, the Ancients uſed an Inſtrument, called a *Gloſſocomium*, whereof this is the figure.

Why the bone of the thigh is more difficultly ſet.

The figure of a Gloſſocomium, *or Extender.*



Sent. 67. & 68. ſect. 2. de fract.

The naturall and internall crookedneſſe muſt be preſerved in ſetting the bone.

The part to bee bound up, muſt be made plaine either by nature or art.

The manner of binding uſed by Surgeons at this day.

In ſtead of this *Gloſſocomium*, you may make uſe of my pulley; for Hippocrates in this bone when it is broken, doth approve of extenſion ſo great, that although by the greatneſſe of the extenſion the ends of the fragments be ſomewhat diſtant aſunder, an emptie ſpace being left betweene; yet notwithſtanding would hee have ligature made. For it is not here as it is in the extenſions of other bones, whereas the caſting about of Ligatures keeps the muſcles unmoveable: but here, in the extended thighes, the deligation is not of ſuch force, as that it may ſtay and keepe the bones and muſcles in that ſtate, wherein the Surgeon hath placed them. For, ſeeing that the muſcles of the thigh are large and ſtrong, they overcome the ligation, and are not kept under by it. The Surgeon, in ſetting it, ſhall alſo conſider, that the thigh-bone is hollowed on the inner ſide, but gibbous on the outſide, therefore it muſt be ſet in its native figure. Otherwiſe, if anie, unmindefull of this conſideration, would have it ſtraight, he ſhall make his Patient halt all his life after: wherefore this inner and native hollowneſſe muſt be filled up and preſerved by putting in a compreſſe or boulſter, ſpread over with *unguentum roſatum*, or the like glutinous thing that it may not fall off: for thus alſo the ligation ſhall the more faithfully keep the fragments of the bone in their places. Moreover, compreſſes ſhall be applied to the more ſlender and leſſe protuberating parts of the thigh, as thoſe which are next the ham and knee, that ſo the whole ligation may be alike, and conſequently the more firme. Now ligatures, as we formerly noted, are ordained for three things. The firſt is, that the bones may bee kept in that ſtate wherein they were ſet, untill they be ſtrengthened by a *Callus*. The ſecond is, to hinder defluxion, which eaſily fals into the broken and luxated parts, both by reaſon of paine, as alſo by weakneſſe. The third is, to ſtay and hold faſt the ſplints and medicines which are applied. Inflammation is hindred by repreſſing and hindring the blood and other humours, ready to flow downe, from entring into the part, and by preſſing thoſe humors, which are preternaturally contained in the part, into the neighbouring parts above and below. Wherefore there muſt no ſmall care be had of preparing ligatures, to wit, that they bee made of choyce and well woven cloth, yet not courſe or rough; and let them be of ſuch length and breadth, as the Surgeon, perſwaded by an artificiall conjecture, ſhal judge to be fit for the thickneſſe and length of the member, and greatneſſe of the fracture: for ligatures ought to be of breadth to involve and cover all the fractured part, and a great part of that which is ſound. But ſeeing that in my Booke of Bandages, I have ſeemed chiefly to ſet downe and approve the manner of binding uſed by Hippocrates, now I thinke good here in this place to deſcribe that which is in common uſe amongſt our Surgeons.

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Our Surgeons therefore at this day require three Ligatures for fractures, the firſt whereof they preſently caſt upon the hurt part, whether broken or diſlocated, or onely ſtrained, making the firſt wrappings upon it; ſo that they moſt and ſtraitlieſt binde it there, but leſſe and more looſely on both ſides thereof. Such circumvolutions, or wrappings, are drawne upwards, and there ended. They muſt bee rowled thicke, and not wide; for ſo if they preſently follow, and lye one upon another, they will hold the bones more firmely, and more farre and wide preſſe forth and repreſſe the ſuperfluous blood from the ſound part. They preſently in like ſort caſt the ſecond ligature upon the verie fracture, giving it two wraps, then going downwards; yet ſo, as that they are opener or wider, and farther diſtant each from other, and not ſo cloſe together, as the circumvolutions of the firſt ligature; that ſo they may preſſe the humors the leſſe to the extremities of the part, as thoſe which cannot receive and beare, without inflammation and danger of a gangrene, ſuch abundance of humors, for that they are not ſufficiently ſpatious, as alſo more remote from the fountaine of native heat, which is greater in the center than in the circumference. At the lower end of the hurt part the circumvolutions either end, or elſe are twined thence backe againe. They caſt on the third ligature in that lower end of the hurt part, and rowle it ſmoothly and gently upwards, the windings being made contrarie to the windings of the firſt and ſecond ligatures; that they may ſo draw backe into their naturall ſtate the muſcles, which peradventure have beene drawne aſide by the force of the former wrappings. Theſe ligations finiſhed, they apply three ſplints of paſt-bord, or ſome ſuch matter; the firſt below the fracture, and that truly more broad, and of ſufficient length; and then two others, one on each ſide, diſtant each from other ſome fingers breadth, to the end to keep the bone that it doe not ſtirre to this ſide or that, being wrapped about with Tow or Cotton. Then they thinke of placing or laying the part, to which purpoſe they propound to themſelves three ſcopes. The firſt is, that the part may lye ſoft; the ſecond, ſmooth, or even; the third, ſomewhat high. The hurt part ought truely to lye ſoft, for that hard lying preſſes it, and cauſes paine and inflammation; which whiles the Patient cannot patiently endure, he is forced to change his place, whilſt he everie way ſeeks eaſe for his paine: and thus he now and then moves the fractured part, which ought to be kept quiet without any motion. It muſt lye ſmooth or even, becauſe an unequall or uneven ſite diſtorts or draws awry the part, whilſt one portion of the hurt part is borne up, and ſuſtained by that which lyes under it; but the other hanging downe hath nothing thereunder, whereupon it may reſt. Therefore Hippocrates bids us diligently to take heed, that the heele doe not hang downe, nor the foot remaine without a pillow, for hence paine and a troubleſome defluxion of humors is to be feared. But the part ought to lye ſomewhat high, that the defluxion may bee hindred, which is eaſily ſtirred up by a prone and declining ſite: for if the foote ſhall be placed in a lower figure, the blood which flowes thither from the legge, will cauſe inflammation. But on the contrarie, if it bee higher, nothing can flow downe thereinto. Therefore abſolutely not only the foote, but alſo the thigh and legge, are to be placed higher than the reſt of the bodie: yet, keeping ſuch a meane, that the part may not be too much diſtended, as Hippocrates admoniſheth us. In the meane time, this hurt legge or ſide, ought to bee of equall length with the ſound, and for that purpoſe it muſt bee ſtayed on both ſides with Junks, as we ſhall ſhew you hereafter, when we come to ſpeak of a broken legge.

Why the windings of the upper ligatures muſt be thicker and ſtraiter than the lower.

Why the third ligature muſt bee rowled contrary to the two firſt.

The Surgeon muſt be mindefull of three things in placing the member.

Sect.2.de fract.

Sent.33.& 36. ſect.2.de fract.

The bandage being performed as we have ſaid, the following night, and the next day the Patient feels the member more ſtraitly bound, than when it was firſt wrapped; yea, verily the knee is lifted up into a ſoft tumor by the expreſſion of the humor from the wounded part: but on the contrarie, the enſuing day the ligation is ſlackned and relaxed, ſome portion of the humor contained in the part being digeſted. Alſo the next day all things are perceived more looſe, there being made a larger reſolution of the humor. Then therefore the Bandages muſt be looſed, and that not only, leſt that the fragments of the bones ſhould fall forth of their place, but alſo that we may gratifie the Patient by that alteration or change of place, and beſides that wee may avoyde itching, which uſually happens to parts too long bound up, by

When the firſt ligation muſt be looſed.

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by reaſon of the ſuppreſſion of acride and fuliginous excrements, which uſe to be gathered in great quantitie in a part at reſt and bound up, both from the excrementitious humors, wherewith the part is moiſtened, and the alimentarie humors in a part which is idle and at quiet; by reaſon the diſſlation and tranſpiration are hindred by want of exerciſe, and the pores of the skinne ſhut up by the abundance of the ligatures: ſo that by the ſuppreſſion thereof, many have not only an itching, but alſo, the skinne being broke by the acrimonie of theſe, as well vapours as humors, which are kept ſhut and pent up, have ulcers breake forth. Therefore when ſuch accidents ſhall be feared, the part ſhall ſo long be fomented with warme water and oyle, as you ſhall thinke fit: for, ſuch fomenting aſſwageth paine, relaxeth that which was too much ſtraitened by the binding, and amends the refrigeration of the part, cauſed by the repercuſſion and expreſſion of the blood and ſpirits, the native and internall heat being by this meanes revived. If, together with the tumor, there be a contuſion and ſugillation, it muſt bee the longer fomented, that the excrementitious humor reſiding in the part may be digeſted. But if this quantitie of time ſhall not ſuffice, then muſt you uſe ſtronger digeſtives: yet have a care you uſe them not too long; for ſo you ſhould hinder the generation of a *Callus*. Therefore that ſaying of Hippocrates muſt here be remembred, which ſaith, That a weak fomentation, and the ſhort time of uſing one doth attract, but not diſcuſſe; but a longer and ſtronger waſtes the fleſh. Beſides alſo, you muſt have regard to the temper and habit of the Patient; for fomentations, uſed to plethorick bodies, draw ſuperfluous humors to the part. The Ancients bid, that the ligatures be looſed everie third day, untill their ſeventh day; but after the ſeventh, on everie ſeventh day: but hereof nothing can be certainly and perpetually decreed. For, according to the accidents the Patients muſt be dreſſed ſooner or later, more often or ſeldome, renuing the ligatures, and the reſt of the dreſſing. Therefore, if no ſymptome urge, I would have none of theſe things, which are done to the Patient at the firſt dreſſing, to be moved, unleſſe as ſlowly and ſeldome as you may. For you hinder the knitting of the bone, if you never ſo little move the ends of the fragments thereof: for, as you ſee wood is joyned together by glue, and pewter with ſowder; ſo the fragments of bones are, by the providence of nature, glued and ſowdred together by a *Callus*. Wherefore broken bones have very much need of reſt, to the generating of a *Callus*; otherwiſe, the matter thereof flowing downe, quickly flowes away, and nothing is done. You may much helpe forwards the generation of a *Callus*, which is begunne about the thirteenth or fifteenth day, by applying an emplaiſter made with the white of an egge, having the powder of red roſe leaves, and wheat floure mixed therewith, and other Catagmatick plaiſters, which ſhall hereafter be deſcribed in ſpeaking of the fracture of a legge.

Sent.15.ſect.3. de offic.

Reſt neceſſary for the knitting of ſet bones.

CHAP. XXI.

Of the fracture of the Thigh nigh to the joynt, or the upper or lower head of the bone.

A hiſtorie.

A Fracture ſometimes happens at the joynt of the hip in the neck of the thigh-bone, as I once obſerved in an honeſt matron. I being called to her, when I had obſerved the hurt Thigh to be ſhorter than the whole, with the outward prominencie of the *Iſchium*, which at the firſt ſight I ſuppoſed to proceede from the head of the thigh bone, I preſently perſwaded my ſelfe it was a diſlocation and no fracture; I then therefore extended the bone, and forced (as I thought) the head thereof into its cavitie. The equalitie of both the legges in bigneſſe which followed upon this extenſion, encreaſed my perſwaſion that it was a diſlocation. The next day I viſited her the ſecond time, and found her in great paine, her hurt legge the ſhorter, and her foot wreſted inwards.

Then I looſed all her ligatures, and perceived ſuch a prominencie as I did formerly. Wherefore I endeavoured againe to force in the head of the bone, as I formerly did. But as I was buſied therein, I heard a little crackling, and alſo I conſidered, that there was no cavitie nor depreſſion in the joynt, by which ſignes I certainly perſwaded my ſelfe, that the bone was broken, and not diſlocated. Neyther only ſuch kinde of Fractures, but alſo the ſeparation of the *appendix* or head of this bone from its place, may induce one to thinke it a diſlocation; which thing hath ſometimes deceived ſome heedleſſe Surgeons, who have not dreamt of the divulſion or ſeparation of the *appendix* from the top of the Thigh-bone, but have judged it only a diſlocation. Then therefore (that I may returne to my former narration) I ſet the bone, and joyned the fragments together, layd thereupon ſplints with compreſſes, made ligations with a rowler, having two heads wrapped about the joynt, and the bodie croſſe-wiſe, and I defended her foote with a Caſe, that none of the clothes might preſſe it. I faſtened a rope to a poſte, and ſo let it come downe into the midſt of the bed, and tyed many knots thereon, for the better taking hold and lifting up her ſelfe; the which thing you muſt alwaies doe in fractures and diſlocations of the thigh and legge, that ſo your Patients may have ſome ſtay, whereby they may ſuccour themſelves with their hands, as oft as they deſire to riſe, or lift themſelves up in their beds, or goe to ſtoole; as alſo, that they may give perſpiration, and as it were ventilation to the loynes, buttocks, rumpe, and other parts, compreſſed and wearied with long lying, for want wherof they are moleſted with heat and paine; whence ulcers ariſe, which oft-times torment the Patient with ſuch tormenting heate and paine, that he is even conſumed by a fever, watchings, and want of reſt. This opportunitie of raiſing the bodie out of the bed, is by ſo much the more needfull in this place, by how much the fracture is nearer the joynt: for there it is more dangerous than in the midſt of the thigh, and conſequently more difficult to dreſſe and heale, for that the part is bloodleſſe, and by reaſon of the multitude of the nerves, tendons and ligaments, which are obnoxious to many maligne ſymptomes. But the Surgeon muſt have diligent care in this kinde of fracture, and muſt looke often that the bone, which is ſet, doe not fall forth againe, which eaſily happens here by any light ſtirring of the bodie, & the like occaſion, for that the thigh hath but one onely bone. Therefore, as oft as the Bandages ſhal be looſed, and the fracture dreſſed, hee ſhall attentively view the figure of the bone, and the magnitude of the affected part, comparing it with the ſound; for the ſet and compoſed fragments of the broken bone, can ſcarce fall aſunder, but that the one muſt lye upon the other. But before it be knit, the part muſt be extended and reſtored to its ſtate, that ſo the Patient may not halt during the reſidue of his life. For I have read it written in Avicen, that ſcarce any doe ſo well recover a fractured thigh, that they doe not halt thereof: therefore the Patient muſt be carefull, that hee move himſelfe, or his bodie, as little as hee can. Many of the Ancients have ſet downe the time of the conſolidation of this bone to bee fiftie dayes: but (as I formerly ſayd) there can bee no certaine or determinate time hereof. But in what time ſoever this bone ſhall bee knit, the Patient muſt not ſtand or goe thereon preſently upon it; for that there remaines a weakeneſſe in the part a long time after, ſo that the Patients are forced to uſe Crutches to goe withall, in the meane ſpace while they recover more ſtrength.

Another fracture of the thigh, reſembling a luxation.

Why the fracture of a bone neare a joynt is more dangerous.

Lib.3.fen.6. tract.1.c.14.

In what ſpace the thigh bone may be knit.

Chap. XXII.

Of the Fracture of the Patella, *or whirle-bone of the Knee.*

The differences.

Signes.

Cure.

Why thoſe halt who have had this bone fractured.

THe Whirle-bone of the knee is oft times contuſed, but not ſo frequently broken: yet when that happens, it goes into two or three peeces, ſometimes long-wiſe, ſometimes athwart. Sometimes it is broken in the midſt, and ſome-whiles ſhivered into many ſplinters, and all theſe eyther with, or without a wound. The ſignes are, impotencie in going, a hollowneſſe in that place, and a ſenſible ſeparation of the fragments of the hurt part, and the crackling of theſe parts under your hand. It is ſet after this manner; Wiſh the Patient to ſtretch forth his legge, yea, hee muſt keepe it extended all the while, untill it be knit; and therefore leſt hee ſhould bend it unawares, the hollowneſſe of the Ham ſhall be filled with a boulſter: for by bending of the knee, the ſet fragments of the whirle-bone would againe fly in ſunder. This being done, the fragments ſhall by the hand of the Surgeon be ſet as is fitting, and be kept ſo ſet by the application of convenient remedies, making ligatures, and applying Junks, as wee ſaid muſt be done in a fracture of the Thigh-bone. And laſtly, you muſt obſerve and doe in this, as in the fracture of a legge. For the Prognoſtick, this I affirme, That I have ſeene none of thoſe who have had this bone fractured, who have not halted during the reſt of their lives. The cauſe hereof is, the knitting by the concretion of a *Callus* hinders the free bending of the knee; going, eſpecially on even ground is more eaſie to the Patient, but an aſcent is farre more difficult, and abſolutely painfull. The Patient muſt neceſſarily for this kinde of fracture lye or keep his bed, at the leaſt for forty dayes.

Chap. XXIII.

Of a broken Legge.

Sent.65.ſect.2. de fract.

Signes that both the bones are broken.

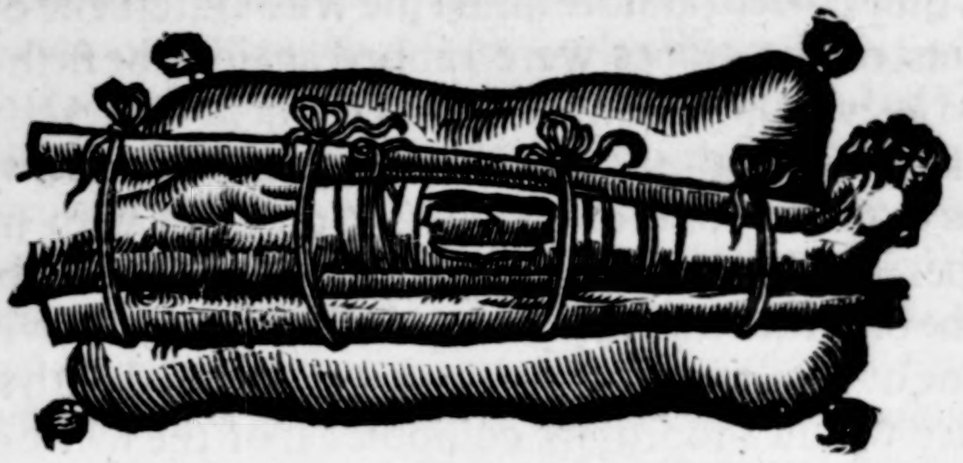
A hiſtorie.

THis kinde of Fracture is cured after the ſame manner as that of the arme or cubit. Hippocrates admoniſheth us, that the *Tibia*, or Leg-bone is more dangerous to be broken, and more difficult and ſlow to be healed than the *Fibula*, or Shin-bone; becauſe that is the thicker, and as it were the upholder of the whole bulke of the bodie: but this other is but as it were a certaine additament or aſſiſtant, provided for the ſtaying or bearing up of the muſcles of the legge, by which the foot is moved. The legge bone being only broken, the ſignes thereof are perceived onely in the inner part of the legge; for that the Shin-bone being whole, ſuffers it not to throw or caſt forth its ſelfe. On the contrarie, when the Shin-bone onely is broken, the ſignes thereof appeare only in the externall part of the legge; becauſe the legge bone, being oppoſed thereto, doth not ſuffer it to caſt in its ſelfe, and with its fragments to turne inwards. But when both the bones are broken, the ſignes of the fracture may equally appeare both here and there. But when only one of theſe bones are broken, the fracture is farre more eaſie to dreſſe and heale, becauſe that which remaines whole, is a much more firme ſtay to that which is hurt, than any ſplints can bee. But that I may the better inſtruct and make readie the Surgeon for the reſtoring of this fracture, I will illuſtrate the matter by an example from my ſelfe. John Neſtor, Doctor of Phyſick, Richard Hubert, and I, went together to viſit a Patient at the Place of the Frier Minorites. Wherefore, intending to paſſe over the Seine within ſight of the place, I endeavoured to make my horſe take boat, and therefore ſwitched him over the buttocks. The Jade, madded herewith, ſo ſtrucke at me with his heels, that he brake both the bones of my left legge, ſome foure fingers breadth above my ankle. Then I, fearing ſome worſe miſchiefe, and leſt the Jade ſhould double his blow, flew back; and as I fled backe, the broken bones flew in ſunder; and breaking through the fleſh, ſtocking and boote, ſhewed themſelves, whereby I felt as much paine, as it is credible a man was able to endure. Wherefore I was preſently carried into the boate, that ſo I might be carried to the other ſide of the water to be dreſſed: but the ſtirring of the boat as they rowed, almoſt killed me with bitterneſſe of paine, for that the ſharpe fragments of the bones were rubbed againſt the fleſh which lay next them. Being ferried over, as I was conveyed into the next houſes, my pain was much encreaſed, whileſt lifted by the hands of divers perſons, one while up, another downe, ſometimes to the left ſide, otherwhiles to the right with my whole bodie, and all the parts thereof. When at the length, I was layd upon a bed, I was ſomewhat freed from the bitterneſſe of my paine, and had time to wipe off the ſweat, which ranne downe over all my bodie. Then was I dreſſed with ſuch a medicine, as the time and place would affoord; we compoſed it of the white of an egge, wheat floure, ſoote of a chimney, and melted butter. For the reſt, I intreated Richard Hubert, that he would handle me, as if he knew mee not, neither that, moved for love of mee, he ſhould remit any thing of the ſeveritie of art, but chiefly, that hee would ſtretch my foot ſtraight out, and if the wound were not ſufficiently wide, that hee would enlarge it with his inciſion knife, that ſo hee might the more eaſily ſet the broken bones in their due place; that hee would with his fingers (whoſe judgement is farre more certaine than the beſt made inſtruments) ſearch, whether the ſplinters which were in the wound were quite ſevered from the bone, and therfore to be taken forth; that he would with his hand preſſe forth the blood, and the clods of blood which were in a great quantitie concrete at the mouth of the wound; that he would bind up and place my legge in that ſite and manner, as he thought beſt: which is, that he ſhould have three rowlers in a readineſſe; the firſt whereof he ſhould caſt directly upon the wound, ſo that he ſhould beginne his ligation at the wound: alſo he ſhould put ſplints about it; ſome three, but others two fingers breadth, of the length of halfe a foote, ſomewhat depreſſed and hollowed, whereby they might be the more eaſily put about the legge, more ſtraitly at their ends, and a fingers diſtance each from other, which at the laſt he ſhould binde with fillets, like thoſe wherewith Women uſe to binde up their haire; yet ſo, that the binding might be more ſtrait upon the wound: and that he would fill the cavitie of the ham, and of the ancles, with boulſters made of flaxe wrapped in linnen clothes: that he would fortifie the ſides of my legge with Junkes made of bents or little ſtickes, and lined with linnen cloth, ſtretched from my heele to my groine, and bound over in foure places; ſo that the ſtrait figure of the legge might ſcarcely bee perverted by any force: that he would gently, and ſmoothly lift up my legge to an indifferent height: and laſtly, that he ſhould arme it from the violence of externall injuries, by putting it in a boxe or caſe. But you muſt note, that the fit placing or laying of the legge is a matter of ſuch moment, that if any errour be here committed, it will cauſe no leſſe than lameneſſe. For if it be lifted up higher than is fit, the *Callus* will be hollow on the foreſide; if lower, then it will be gibbous or bunching forth. Neither alſo doe they commit a ſmall errour, who doe not fill up the cavities at the ancles after the forementioned manner: for, hereupon the heele will be much afflicted, whileſt it is forced to ſuſtaine a tedious and painefull compreſſion, which at length brings a hot diſtemper, becauſe the ſpirits cannot freely flow thereto; which I, finding by experience, not knowing the cauſe, wiſhed them ever now and then to lift up my heele, wherby it might enjoy the benefit of perſpiration, and the ſpirits have free entrance thereinto, & the contained vapours paſſing forth. To conclude, my hurt legge was layd upon a cuſhion after the manner you ſee here deſcribed.

A ſoone made medicine.

What to doe when the legge is broken.

The figure of a Legge fractured with a wound, and bound up.



Chap. XXIV.

Of ſome things to be obſerved in Ligation, when a fracture is aſſociated with a wound.

That the ligation muſt be moſt ſtrait upon the wound.

What ſymptomes enſue the want of binding upon the wounded part.

Signes of the corruption of the bones.

When the wounded part muſt be omitted in ligation.

This, taken out of the doctrine of the Ancients, ought to bee kept firme and ratified, That Ligation muſt bee made upon the wound; otherwiſe the wounded part will preſently lift it ſelfe up into a great tumor, receiving the humors preſſed thither by the force of the Ligation made on this and that ſide, above and bolow, whence enſue many maligne ſymptomes. You may make triall hereof upon a ſound fleſhie part; for if you binde it above and below, not touching that which is in the midſt, it will be lifted up into a great tumor, and change the flouriſhing and native colour into a livide or blackiſh hue, by reaſon of the flowing and abundance of the humors preſſed forth on everie ſide from the neighbouring parts. Therefore ſuch things will happen much the rather in a wounded or ulcerated part. But for this cauſe, the ulcer will remaine unſuppurated and weeping, crude and liquid *ſanies* flowing there-hence, like unto that which uſually flowes from inflamed eyes. Such *ſanies*, if it fall upon the bones, and make any ſtay there, it, with the touch therof, burnes and corrupts them, and ſo much the more, if they be rare and ſoft. Theſe will bee the ſignes of ſuch corruption of the bones; if a greater quantitie, and that more filthie *ſanies*, flow from the ulcer, than was accuſtomed, or the nature of a ſimple ulcer requires; if the lippes of the ulcer be inverted; if the fleſh be more ſoft and flaccid about them; if a ſorrowfull ſenſe of a beating, and alſo deepe paine torment the Patient by fitts; if, by ſearching with your Probe, you perceive the bone to be ſpoyled of its *perioſtium*; and laſtly, if you finde it ſcaily and rough, or alſo if your Probe bee put downe ſomewhat hard, it runne into the ſubſtance of the bone. But we have treated ſufficiently hereof in our particular Treatiſe of the rottenneſſe of the bones. But certainely ſuch rottenneſſe will never happen to the bone, if the hurt part be bound up, as is fit, and according to art. Wherefore I judge it not amiſſe, againe to admoniſh the Surgeon of this, That as farre as the thing ſhall ſuffer, hee make his rowlings upon the wound; unleſſe by chance there be ſuch exceſſive paine and great inflammation, that, through occaſion of ſuch ſymptomes and accidents, he be diverted from this proper and legitimate cure of the diſeaſe. Therefore then, becauſe nothing more can be done, let him only doe this, which may be done without offence; that is, let him ſupply the defect of ligation and rowlers, with a linnen cloth, not too weake, nor too much worne, being twice or thrice doubled, and which may ſerve to compaſſe the wound and neighbouring parts once about: let him ſew the edges thereof at the ſides of the wound, leſt he be forced to ſtirre the fragments of the bones (which once ſet ought to be kept unmoved) as often as the wound comes to be dreſſed. For, broken bones doe not require ſuch frequent dreſſing, as wounds and ulcers doe. By this it appeares, that as want of binding, and too much looſeneſſe in abſence

ſence of paine and a Phlegmon, ſo alſo too ſtrait ligation, when paine is preſent, brings a Phlegmon and Abſceſſe to the wound. Therefore let all things here, according to the forementioned rules and circumſtances, be indifferent. I have for this purpoſe thought good to reiterate theſe things, becauſe you ſhall as yet finde many, who follow the practice of Paulus, and make many circumvolutions here and there, above and below the wound, which preſently they carrie croſſe-wiſe. But this croſſe or lattice-like kinde of ligation is wholly to be diſliked, and that onely to be uſed which we have deſcribed, according to the minde of Hippocrates. Now it is time, that I returne to the former hiſtorie of my miſhap, and declare what was done to me after that firſt dreſſing, which I have formerly mentioned.

Lattice-like binding to be ſhunned.

Chap. XXV.

What was uſed to the Authors Legge after the firſt dreſſing.

I Being brought home to mine owne houſe in Paris in the afternoone, they tooke from me, out of the Baſilica of the left arme, ſome ſixe ounces of blood. And then at the ſecond dreſſing the lippes or edges of the wound and places thereabout were anointed with *unguentum roſatum*, which, by a joynt conſent of the Ancients, is much commended in the beginnings of fractures: for it will aſſwage paine, and hinder inflammation, by repelling the humors farre from the wounded part: for it is cold, aſtringent and repelling, as the compoſition thereof ſhewes; for it is made *ex oleo omphacino, aqua roſacea, pauco aceto & cera alba.* Therefore I uſed this oyntment for ſixe dayes; I dipped the compreſſes and rowlers ſomewhiles in oxycrate, otherwhiles in thick and aſtringent red wine, for the ſtrengthning of the part, and repreſſing the humors; which two things wee muſt have a care of in Hippocrates opinion, in fractures eſpecially with a wound. Wherfore if at any time the compreſſes or rowlers ſeemed to dry, I now and then moyſtened them with the oxycrate, or roſe vineger: for, by their too much drineſſe, paine and inflammation happen; and if they binde the part ſomewhat more ſtrait, they hurt it alſo by their hardneſſe. You ſhall ſee many ſurgeons, who in this kinde of affect, from the beginning to the end, uſe onely aſtringent and emplaſtick medicines, wholly contrary to the methode ſet down by Hippocrates, and commended by Galen. For, by the continued uſe of ſuch things, the pores and breathing places of the ſkinne are ſhut up; whence the fuliginous excrement being ſuppreſt, the externall heat is increaſed, and itching cauſed, and at length an ulcer by the fretting of the acride and ſerous humor long ſuppreſt. Whereby you may learne, that aſtringent and emplaſtick medicines muſt not bee uſed above ſixe daies. In ſtead hereof you ſhall uſe the emplaiſters, which I ſhall preſently deſcribe. In the beginning of my diſeaſe I uſed ſo ſpare a diet, that for nine daies, I ate nothing each day, but twelve ſtewed prunes, and ſixe morſels of bread, and dranke a Paris pinte of ſugred water, of which water this was the compoſition.

Unguentum roſatum, wherefore good in fractures.

You muſt have a care, that the compreſſes and rowlers grow not hard by drineſſe.

℞. *ſacc. albiſ.* ℥ xii. *aquæ font.* ℔ xii. *cinam.* ʒ iii. *bulliant ſimul ſecundum artem:* Otherwhiles I uſed ſyrup of maydens hair with boyled water: Otherwhiles, the divine drinke (as they terme it) whereof this is the compoſition. ℞. *aquæ coctæ* ℔. vi. *ſacc. albiſ.* ℥ iiii. *ſucc. lim.* ℥ i. *agitentur & tranſvaſentur ſæpius in vaſis vitreis.* I was purged when neede required with a bole of *Caſsia* with Rubarbe. I uſed alſo ſuppoſitories of Caſtle ſoape to make me goe to ſtoole; for, if at any time I wanted due evacuation, a preternaturall heat preſently ſeized upon my kidneyes. With this, though exquiſite manner of diet, I could not prevaile, but that a fever tooke mee upon the eleventh day of my diſeaſe, and a defluxion, which turned into an Abſceſſe, long flowing with much matter. I thinke the occaſion hereof was ſome portion of the humor ſuppreſt in the bottome of the wound; as alſo by too looſe binding, by reaſon that I could not endure juſt or more ſtrait binding; and laſtly,

The deſcription of a ſugred water.

The cauſes of a fever and abſceſſe, enſuing upon a fracture.

ſcales

Signes of ſcales ſevered from their bones.

ſcales or ſhivers of bones quite broke off, and therefore unapt to be agglutinated: for theſe therefore putrefying, drew by conſent the proper nouriſhment of the part into putrefaction, and by the putredinous heat thence ariſing, did plentifully adminiſter the materiall and efficient cauſe to the defluxion and inflammation. I was moved to thinke they were ſcales, ſevered from their bone, by the thin and crude *ſanies* flowing from the wound, the much ſwolne ſides of the wound, and the more looſe and ſpongie fleſh thereabouts. To theſe cauſes, this alſo did accrew, one night amongſt the reſt, as I ſlept, the muſcles ſo contracted themſelves by a violent motion, that they drew my whole Legge upwards; ſo that the bones, by the vehemency of the convulſion, were diſplaced, and preſſed the ſides of the wound; neyther could they be perfectly compoſed or ſet, unleſſe by a new extenſion and impulſion, which was much more painefull to mee than the former. My fever, when it had laſted with me ſeven dayes, at length enjoyed a *Criſis* and end, partly by the eruption of matter, and partly by ſweat, flowing from me in a plenteous manner.

Chap. XXVI.

What may be the cauſe of the convulſive twitching of broken members.

Why the extreme parts are cold when we ſleepe.

This contraction, and (as it were) convulſive twitching, uſually happens to fractured members in the time of ſleepe. I thinke the cauſe thereof is, for that the native heat withdraws its ſelfe while we ſleepe, into the center of the body; whereby it commeth to paſſe, that the extreme parts grow colde. In the meane while, nature, by its accuſtomed providence, ſends ſpirits to the ſuply of the hurt part. But becauſe they are not received of the part evill affected and unapt thereto, they betake themſelves together, and ſuddenly, according to their wonted celerity, thither from whence they came, the muſcles follow their motion: with the muſcles, the bones, whereinto they are inſerted, are together drawne; whereby it comes to paſſe, that they are againe diſplaced, and with great torment of paine, fall from their former ſeate. This contraction of the muſcles is towards their originall.

Chap. XXVII.

Certaine Documents concerning the parts, whereon the Patient muſt neceſſarily reſt, whileſt he lyes in his bed.

The naturall faculties languiſh in the parts by idleneſſe, but are ſtrengthened by action.

Those who have their Legge or the like bone broken, becauſe they are hindered by the bitterneſſe of paine, and alſo wiſh for their cure or conſolidation, are forced to keep themſelves without ſtirring, and upon their backes in their beds for a long time together. In the meane ſpace, the parts whereupon they muſt neceſſarily lye, as the heele, backe, holy-bone, rumpe, the muſcles of the broken thigh or legge remaine ſtretched forth and unmoveable, ſet at libertie from their uſuall functions. Whereby it comes to paſſe, that all their ſtrength decayes, and growes dull by little and little. Moreover alſo, by the ſuppreſſion of the fuliginous and acride excrements, and want of perſpiration, they grow preternaturally hote; whence defluxion, an abſceſſe and ulcer, happen to them, but principally to the holy-bone, the rumpe and heele: to the former, for that they are defended with ſmall ſtore of fleſh; to the latter, for that it is of more exquiſite ſenſe. Now the ulcers of theſe parts are difficultly healed, yea, and oft-times they cauſe a gangrene in the fleſh, and a rottenneſſe and mortification in the bones there-under, and for the moſt part a continued fever, *delirium*, convulſion, and (by that ſympathie which generally accompanies ſuch affects) a hicketing. For the heele and ſtomacke are two very nervous parts, the latter in the whole bodie

How, and what ulcers happen upon the fracture of the legge, to the rumpe & heele.

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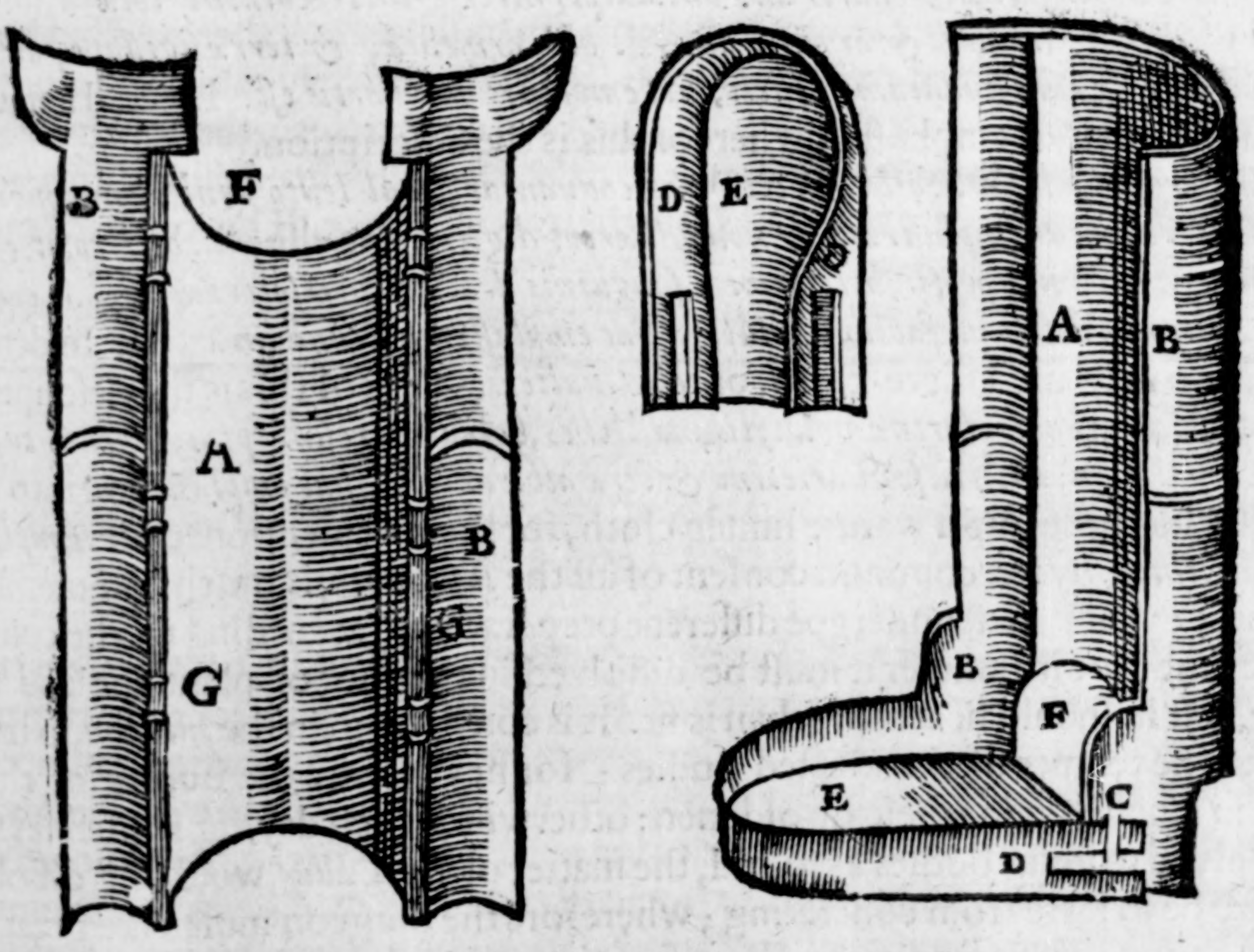
thereof, and by a large portion of the nerves of the ſixth conjugation; but the other by the great tendon paſſing under it, the which is produced by the meeting, and as it were growing together of the three muſcles of the calfe of the legge. All which are deadly, both by diſſipation of the native heat by the feveriſh, and that which is preternaturall; as alſo by the infection of the noble parts, whoſe uſe the life cannot want, by carrion-like vapours. When as I conſidered all theſe things with my ſelfe, and (become more skilfull by the example of others) underſtood how dangerous they were, I wiſhed them now and then to lift my heele up out of the bed; and taking hold of the rope which hung over my head, I heaved up my ſelfe, that ſo the parts, preſſed with continuall lying, might tranſpire, and be ventilated. Moreover alſo I reſted theſe parts upon a round cuſhion, being open in the middle, and ſtuffed with ſoft feathers, and layd under my rumpe and heele, that they might be refreſhed by the benefit and gentle breathing of the ayre: and I did oft-times apply linnen clothes, ſpred over with *unguentum roſatum*, for the aſſwaging of the paine and heat. Beſides alſo, I deviſed a Caſſe of Lattin, wherein the broken legge being layd, is kept in its place, farre more ſurely and certainely than by anie Junks; and moreover alſo, it may all be moved to and againe at the Patients pleaſure. This Caſſe will alſo hinder the heele from lying with all its bodie and weight upon the bed, putting a ſoft and thicke boulſter under the calfe, in that place where the Caſſe is hollow: beſides alſo, it armes and defends it againſt the falling downe and weight of the bed-clothes, having a little arch made over and above, of the ſame matter. All which ſhall bee made manifeſt unto you by the following figure.

Remedies for the prevention of the foreſaid ulcers.

The uſe of a Lattin Caſſe.

The figure of a Caſſe.



A A. *Shew the bottome or belly of the Caſſe.*
B B. *The wings or ſides to be opened and ſhut at pleaſure.*
C. *The end of the wings, whereto the ſole or arch is fitted.*
D D. *The Arch.*
E E. *The Sole.*
F F. *An open ſpace, whereat the heele hangs forth of the Caſſe.*

Now it remaines, that I tell you what remedies I applyed to the Abſceſſe which happened upon my wound. When therefore I perceived an Abſceſſe to breed, I compoſed a ſuppurative medicine of the yoalks of egges, common oyle, turpentine, and

A ſuppurative medicine.

and a little wheat floure, and I uſed it untill it was opened: then to cleanſe it I uſed this following remedie.

A deterſive.

℞. *ſyrupi roſati & terebinth. venetæ, an.* ℥ii. *pulveris radicis ireos florentiæ, aloes, maſtiches, farinæ hordei, an.* ʒ ß. *incorporentur omnia ſimul & fiat mundificativum:* but I had a care, that the place, whereat I conjectured the quite ſevered ſcales of the bones muſt breake forth, ſhould be filled with tents made of ſponge or flaxe, that ſo, by this meanes, I might keep the ulcer open at my pleaſure. But I put into the bottome of the ulcer catagmatick and cephalicke powders, with a little burnt Alum to procure the egreſſe of the formerly mentioned ſcales. Theſe at length caſt forth, I cicatrized the ulcer with burnt Alum. For, this having a drying and aſtringent facultie, confirmes and hardens the fleſh, which is looſe and ſpongie, and flowing with liquid *ſanies*, and helps forwards natures endeavour in cicatrization. For, the fragments of the bones, they, by reaſon of their naturall drineſſe and hardneſs, cannot be joyned and knit together by themſelves without a *medium:* but they need a certaine ſubſtance, which, thickning and concreting at their ends, doth at length glue them together, and (as it were) faſten them with ſoder. This ſubſtance hath its matter of the proper ſubſtance and marrow of the bones; but the forme from the native heat, and emplaſtick medicines, which moderately heat. For, on the contrarie, theſe medicines, which, by their too much heat, doe diſcuſſe and attenuate, doe (as it were) melt and diſſolve the matter of the *Callus*, and ſo hinder the knitting. Wherefore for this purpoſe, I would wiſh you to make uſe of the following emplaſters, of whoſe efficacie I have had experience: for, hence they are called knitting or conſolidating plaiſters.

Catagmatick powders have power to caſt forth the ſcales of bones.

The cauſes both efficient and materiall of a *Callus*.

Medicines conducing to the generation of a *Callus*.

℞. *olei myrtill. & roſarum omphac. an.* ℔.ß. *rad. altheæ* ℔.ii. *rad. fraxini, & fol. ejuſdem, rad. conſolidæ majoris & fol. ejuſdem, fol. ſalicis an.* m.i. *fiat decoctio in ſufficienti quantitate vini nigri, & aquæ fabrorum, ad medietatis conſumptionem, adde in colatura pulveris myrrhæ & thuris an.* ℥ ß. *adipis hirci* ℔.ß. *terebinth. lotæ* ℥iiii. *maſtiches* ʒ iii. *lithargyri auri & argenti an.* ℥ii. *boli armeniæ, & terræ ſigillatæ, an.* ℥i.ß. *minii* ʒ vi. *ceræ albæ quantum ſufficit, fiat emplaſtrum, ut artis eſt.* In ſtead hereof you may uſe the blacke emplaiſter, whereof this is the deſcription.

The black plaiſter.

℞. *lithargyri auri* ℔.i. *olei & aceti* ℔.ii. *coquantur ſimul lento igne donec nigrum & ſplendens reddatur emplaſtrum, & non adhæreat digitis.* Or elſe, ℞. *olei roſat. & myrtill. an.* ℥ ii. *nucum cupreſſi, boli armen. ſanguinis drac. pulveriſatorum an.* ℥.ß. *emplaſtri diachalciteos* ℥ iiii. *liquefaciant ſimul, & fiat emplaſtrum ſecundum artem.* In defect of theſe, you may uſe a Cere-cloth, or *tela Gualteri*, whereof this is the deſcription.

The deſcription of a *Sparadrapum* or cere-cloth.

℞. *pulveris thuris, farinæ volatilis, maſtiches, boli arm. reſinæ pini, nucum cupreſſi, rubiæ tinctorum, an.* ℥ii. *ſevi arietini & ceræ albæ an.* ℔.ß. *fiat emplaſtrum:* into which (whileſt it is hote) dip a warme linnen cloth, for the forementioned uſe. *Emplaſtrum Diacalcithios*, by the common conſent of all the Ancients, is much commended for fractures: but it muſt undergoe different preparations, according to the condition of the time; for in ſummer it muſt be diſſolved in the juice of plantaine and nightſhade, leſt it ſhould heat more than is fit. It is convenient, in the *interim*, to have regard to the temper of the affected bodies; for neyther are the bodies of children to be ſo much dried as theſe of old men: otherwiſe, if ſuch drying medicines ſhould be applyed to yong bodies as to old, the matter of the *Callus* would be diſſolved, it would be ſo farre from concreting; wherefore the Surgeon muſt take great heede in the choyce of his medicines. For, often times remedies, good of themſelves, are by uſe made not good, becauſe they are uſed and applyed without judgment: which is the cauſe that oft times pernicious accidents happen, or elſe the *Callus* becomes more ſoft, hard, ſlender, crooked, or laſtly concretes more ſlowly by the great error, and to the great ſhame of the Surgeon.

Medicines good of themſelves, not good by event.

CHAP. XXVIII.

By what meanes we may know the Callus is a breeding.

WHen I knew that my legge begunne to knit, when as leſſe matter than was uſuall came from the ulcer, when the paine ſlackened, and laſtly, when as the convulſive twitchings ceaſed; which cauſed me to judge it fit to dreſſe it ſeldomer than I was uſed to doe. For, by the frequent deterſion in dreſſing an ulcer, whilſt a *Callus* is breeding, the matters whereof it is to be made, are drawne away and ſpent, which are (as they terme them) *Rôs*, *Cambium*, and *Gluten*, which are the proper and genuine nouriſhments both of the bony, as alſo of the fleſhie ſubſtance. I by other ſignes alſo conjectured the breeding of the *Callus*, to wit, by the ſweating of a certaine dewie blood out of the edges and pores of the wound, which gently dyed and bedewed the boulſters and ligatures, proceeding from the effluxe of the ſubtler and gentler portion of that matter, which plenteouſly flowed downe for the breeding of a *Callus*. As alſo, by a tickling and pleaſing ſenſe of a certaine vapour, continually creeping, with a moderate and gentle heate, from the upper parts even to the place of the wound. Wherfore thence forwards I ſomewhat looſened the ligation, leſt, by keeping it too ſtrait, I ſhould hinder from entring to the fragments of the bones, the matter of the *Callus*, which is a portion of the blood, temperate in qualitie, and moderate in quantie. Then therefore I thought good, to uſe nouriſhments fit to generate more groſſe, thicke and tenacious blood, and ſufficient for generating a *Callus*; ſuch as are the extremities, tendinous and griſtly parts of beaſts, as the heads, feete, legges and eares of Hoggs, Oxen, Sheepe, Kids; all which I boyled with Rice, French Barley, and the like, uſing ſomewhiles one, ſomwhiles another, to pleaſe my ſtomack & palate. I alſo ſomtimes fed upon frumity, or wheat ſodden in Capon broth with the yoalks of egges; I dranke red, thicke and aſtringent wine, indifferently tempered with water. For my ſecond courſe, I ate cheſnuts and medlars: neyther doe I without ſome reaſon, thus particularize my diet: for that groſſe nouriſhments, eſpecially if they be friable and fragile, as beefe is, are alike hurtfull (for as much as pertaines to the generating of a *Callus*) as light meats are. For that makes the *Callus* too dry, theſe too tender. Wherfore Galen pronounces theſe meats only fit for generating a *Callus*, which are neyther fragile nor friable, neither ſerous and thin, nor too dry; but indifferent groſſe, and alſo viſcide, fat and tough. Theſe meats, digeſted by the ſtomacke into *Chilus*, are ſent into the guts, and from hence, by the meſaraick veines, into the Gate-veine, and the hollow part of the Liver, thence into the Hollow-veine, and ſo into the Veines diſperſed over all the bodie and the parts thereof. There are alſo ſome of theſe veines which carrie blood into the bones; but in the large cavities of the bones is marrow contained, as in the ſmall a certaine marrowie ſubſtance, proportionable thereto, being their proper nouriſhment. The generation of marrow is from the groſſer portion of the blood; which flowes into the greater cavities of the bones by larger veines and arteries, but into the leſſe by leſſer, which end in their pores and ſmall paſſages. For, in large bones you may obſerve large and apparent paſſages, by which the veines and arteries enter for the forementioned uſe. By the ſame waies the nerves alſo inſinuate themſelves, from whence proceedes a membrane which involves the marrow of the bones, the which by that means is endued with moſt exquiſite ſenſe, as experience teacheth; which is the cauſe that makes many beleeve, that the marrow hath ſenſe of feeling, becauſe the membranes thereof being hurt cauſe moſt bitter paine. Therefore out of the marrow and the proper ſubſtance of the bone, there ſweats a certaine groſſe and terreſtriall juice, whereof, by the power of the aſſimilating facultie, which ſerves in ſtead of the formative, a *Callus* growes and knits. Simple fractures of the legge are uſually knit in fiftie daies; but through the occaſion of the wound and the ſcales quite broke off, and other accidents which befell mee, it was three whole months before the fragments of the bones were perfectly knit, and it was alſo another month, before I could goe upon

When the *Callus* is breeding the ulcer muſt be ſeldome dreſt.

Hipp. ſent. 43. ſect. 1. de fract.

Meats fit for generating a *Callus*.

Lib. 6. meth. cap. 5.

Why the marrow may ſeeme to have ſenſe of feeling.

In what ſpace the legge is uſually knit.

my legge without the helpe of a Crutch. Going was painefull to me for ſome few daies, becauſe the *Callus* had taken up ſome place of the muſcles: for, before my former freedome of motion could returne againe to the broken and knit part, it was neceſſarie, that the Tendons and Membranes ſhould ſeparate themſelves by little and little from the ſcarre. In the performance of all theſe things, I had the diligent and faithfull aſſiſtance amongſt the Surgeons, to omit Phyſitians, of Anthonie Portall, the Kings Surgeon.

Chap. XXIX.

Of thoſe things which may hinder the generation of a Callus, *and how to correct the faults thereof, if it be ill formed.*

Diſcuſsing and unctuous medicines hinder the generation of a *Callus*.

What helps forward the generation thereof.

Having already ſpoken of the ſignes of a *Callus* beginning to concrete, of its generation and the manner thereof: it now remaines, that wee treat of thoſe things which hinder the generation thereof; and what on the contrarie helpe forwards the conformation and concretion thereof. Now theſe things which either wholly hinder, or elſe retarde the generation of a *Callus*, have a ſtrong and powerfull diſcuſsive and attenuating facultie; or elſe they are unctuous, oyly and moiſt. For, by ſuch the juice, wherof the *Callus* ought to be, is eyther melted and conſumed, or elſe growes ſoft, and is relaxed. But on the contrarie, thoſe things which helpe forwards a *Callus* muſt bee drying, incraſſating, thickening, hardening and emplaſticke, moderately hot and aſtringent. But for moiſt and relaxing medicines, they ought to have no place here, unleſſe when it happens that the *Callus* is ill formed, that is, too thicke, or crooked, or otherwiſe ill ſhapen, whereby it may be waſted and broken, ſo to bee reſtored againe after a better manner. Yet notwithſtanding, ſuch things are not to be attempted, unleſſe when the *Callus* is yet greene, and ſo depraved, that the fault therof doth very much pervert the native conformation of the part, and exceedingly offend the action. Then therefore in ſuch a caſe, the place muſt be fomented with a decoction of a ſheeps head and guts, wherein ſhall be boyled the roots of Marſh mallowes, of Brionie, the ſeeds of Line, of Fænugreeke, Pigeons dung, Bay-berries, and the like. You ſhall alſo uſe this following oyntment and plaiſter.

℞. *unguenti de Althæa* ℥ iiii. *olei liliorum. & axungiæ anſeris an.*℥ i. *aquæ vitæ parum, liqueſiant ſimul, fiat linimentum quo liniatur pars.* Then apply this following emplaiſter.

℞. *emplaſt. de Vigo cum mercurio, cerati æſypati deſcriptione Philagrii, an.* ℥ iii. *olei anethini & liliorum an.*ʒ i. *liqueſiant omnia ſimul, fiat emplaſtrum*, let it bee ſpred upon leather for the foreſaid uſe. When by this meanes the *Callus* ſhall ſeeme to be ſufficiently mollified, it ſhal be broken, and the bones reſtored to their naturall ſtate, and the cure of the fracture to be followed as at the beginning. If the *Callus* be become too hard through age, it is better not to break it, but to let it alone, leſt ſome worſe accident befall the Patient. For it may ſo fall out, that by your labouring to breake it, the bone may breake in ſome other part, before it break in that which is knit by the *Callus*. Therefore the diſcreet Patient had rather live lame, than for eſchewing it, to undergoe the hazzard of his life. If the *Callus* be too groſſe, it ſhalbe diminiſhed (if it be as yet freſh) with emollient, reſolving, and powerfully aſtringent medicines, which have force to diſſolve, dry and exhauſt. It will alſo bee good ſtrongly to rubb the *Callus* with oyle of Bayes, wherein Salt-peter, or ſome other kinde of Salt hath been diſſolved, then wrapped about with a Rowler, to binde it very ſtraitly, putting a leaden plate thereon, whereby the flowing downe of the nouriſhing humor into the part, may be forbidden; that thus by little and little the *Callus* may decay and diminiſh. If on the contrarie, it any waies happen, that the *Callus* be more thin and ſlender, or grows more ſlowly, for that it is too ſtraitly bound, or becauſe the idle part is longer kept in quiet than is fit, without exerciſing of its proper function (which cauſe is to be reckoned amongſt the chiefe cauſes of the leaneneſſe

What *Callus* muſt not be broken, though diſtorte, or otherwiſe ill conformed.

The cauſes of too ſlender a *Callus*.

neſs, even for this reaſon, for that exerciſe ſtirres up the native heat of the part,the worker of digeſtion and nutrition)or elſe for that they feed upon ſuch nouriſhments as offend in quality, or quantity,or both, or for that the ligature uſed to the part is too often looſed, or becauſe the part its ſelfe is too haſtily and before the time put to undergoe ſolid offices and motions. According to the variety of cauſes,medicines ſhall bee applyed. For if the ligature of the part bee too ſtrait, it ſhall bee looſed, yea verily the fractured place, the ligature being taken away, ſhall be quite freed from ligation, and a new kind of ligature muſt bee made, which muſt be rowled downe from the roote of the veſſels, that is, from the armepitts,if the arme; or from the groine,if the legge be broken, to the fracture: yet ſo,as that you may leave it untouched or taken in,for thus the blood is preſſed from the fountain and ſpring, and forced into the affected part,by a way quite contrary to that, whereby we have formerly taught in feare of inflammation, to hinder it from entrance into the affected part. Alſo gentle frictions and fomentations with warme water may be profitably made, from which you muſt then diſiſt when the part ſhall begin to grow hot and ſwell. If any too long continue theſe frictions and fomentations, hee ſhall reſolve that which he hath drawne thither. For this we have often times obſerved,that frictions & fomentations have contrary effects, according to the ſhortneſs and continuance of time. Pications wil alſo conduce to this purpoſe,and other things which cuſtomarily are uſed to members troubled with an *atrophia*,or want of nouriſhment.

Remedies therefore.

When we muſt deſiſt from fomenting and frictions.

Chap.XXX.

Of fomentations which be uſed to broken bones.

Divers fomentations are uſed to broken bones for ſeverall cauſes. When we uſe warme water for a fomentation, wee meane that, which is juſt between hot and cold, that is, which feeles luke warme to the hand of the Phyſitian and Patient. A fomentation of ſuch water uſed for ſome ſhort ſpace doth moderately heat, attenuate and prepare for reſolution,the humor which is in the ſurface of the bodie; it drawes blood and an alimentarie humor to the part labouring of an *Atrophia*; it aſſwages paine, relaxes that which is too much extended, and moderately heats the member refrigerated through occaſion of too ſtrait binding,or by any other means. On the contrarie,too hot fomenting cools by accident,digeſting and diſcuſſing the hot humor which was contained in the member. We meane a ſhort time is ſpent in fomenting, when the part begins to grow red and ſwell; a juſt ſpace, when the part is manifeſtly red and ſwolne: but we conjecture,that much or too much time is ſpent thereon,if the redneſſe,which formerly appeared,goe away, and the tumor,which lifted up the part, ſubſide. Alſo in fomenting, you muſt have regard to the bodie whereto it is uſed. For if it be plethorick, an indifferent fomentation will diſtend the part with plenty of ſuperfluous humors; but if it be leane and ſpare, it will make the part more fleſhie and ſucculent. Now it remaines, that we ſay ſomewhat of the fracture of the bones of the feet.

Warme water.

The effects thereof.

Notes of ſhort, juſt, and too long fomenting.

Fomentations hurt plethorick bodies.

Chap.XXXI.

Of the fracture of the bones of the feet.

The bones of the Inſtep, back and toes of the feet, may bee fractured as the bones of the hands may. Wherefore theſe ſhall bee cured like them, but that the bones of the Toes muſt not be kept in a crooked poſture, as the bones of the fingers muſt, leſt their action ſhould periſh or bee depraved. For as we uſe our legges to walk, ſo we uſe our feet to ſtand. Beſides alſo the Patient ſhall keep his bed untill they be knit.

Why the fractured bones of the foot muſt be kept in a ſtrait poſture.

The end of the fifteenth Booke.

OF DISLOCATIONS, OR, LUXATIONS

THE SIXTEENTH BOOKE.

CHAP. I.

Of the kinds and manners of Diſlocations.

A Diſlocation is the departure or falling out of the head of a bone from its proper cavitie, into an unaccuſtomed place beſides nature, hindring voluntarie motion: There is another kinde of Luxation, which is cauſed by a violent diſtention, and as it were a certaine divarication, and dilatation, or extenſion into length and breadth of the ligaments, and all the nervous bodies, which containe, ſtrengthen, and binde together the joynts. Thus thoſe who have beene tormented and racked, have that thick ligament which is in the inner cavitie of the huckle bone too violently extended: Thoſe who have ſuffered the Strappado, have the ligaments, encompaſſing the articulation of the Arme-bone, with the ſhoulder-blade, forcibly and violently diſtended. Such alſo is their affect whoſe foot is ſtrained by ſlipping. There is a third kinde of Luxation, when as thoſe bones which are joyned contiguous, and one (as it were) bound to the ſides of another, gape or flye aſunder: as in the Arme, when the ell parts from the wand; in the legge, when the one focile flyes from the other: yet this may be referred to the ſecond ſort of diſlocations, becauſe it happens not without dilatation, or elſe the breaking of the ligaments. There is alſo a fourth added to theſe, as when the *Epiphyſes* and heads of bones are plucked from the bone whereon they were placed or faſtened: which unproperly called kinde of Luxation, hath place chiefly in the bones of yong people, and it is knowne by the impotencie of the part, and by the noiſe and grating together of the crackling bones when they are handled. Now the bones of yong folks are alſo incident to another caſualtie: for as the bones of old people are broken by violence by reaſon of their drineſſe and hardneſſe, thus the bones of children are bended or crooked in by reaſon of their naturall ſoftneſſe and humiditie.

What a Luxation properly ſo called is.

What a Luxation not properly ſo called is.

The third kind of Diſlocation.

The fourth.

Chap. II.

Of the differences of Diſlocations.

What Luxations are ſimple

What compound.

What a complete Luxation is.

What a ſubluxation or ſtraine.

SOme Diſlocations are ſimple, others compound. We terme them ſimple which have no other preternaturall affect joyned with them; and ſuch compound, as are complicated with one or more preternaturall affects; as when a diſlocation is aſſociated with a wound, fracture, great paine, inflammation, and an abſceſſe. For, through occaſion of theſe we are often compelled ſo long to let alone the luxation, untill theſe bee remitted of themſelves, or by our art. Some Diſlocations are complete and perfect, as when the bone wholly fals out of its cavitie: otherſome are unperfect, as when it is only lightly moved, and not wholly fallen out; wherfore we only call them ſubluxations or ſtrains. Differences of Luxations are alſo drawne from the place: for ſometimes the bone is wreſted forwards, otherwhiles backwards, upwards, downwards; ſomewhiles it may be wreſted, according to all theſe differences of ſite, and otherwhiles onely according to ſome of them. Differences are alſo taken from the condition of the diſlocated Joynt in greatneſſe and littleneſſe, from the ſuperficiarie or deepe excavation of the *ſinus* or hollowneſſe; and laſtly from the time, as if it be lately done, or of ſome long continuance. I have judged it fit to ſet downe all theſe, for that there are ſeverall indications of curing, according to the varietie of each of theſe, as we ſhall teach hereafter.

Chap. III.

Of the cauſes of Diſlocations.

Internall cauſes of diſlocations.

Externall cauſes.

Hereditary cauſes.

Sect.3. ſent.88. & 94 ſect.82. 4. ſent.3. & 4. lib. de art.

Children may have Impoſtumes in their mothers wombs.

THere are three generall cauſes of Luxations, internall, externall, and hereditarie. The internall are excrementitious humors and flatulencies, which, ſettling into the joynts with great force and plentie, doe ſo make ſlipperie, ſoften & relaxe the ligaments which binde together the bones, that they eaſily fall out of their cavities; or elſe they ſo fill and diſtend theſe ligaments, and make them ſo ſhort, that being contracted, they alſo contract the *appendices* of the bones from whence they ariſe, and ſo pluck them from the bone whereon they are placed, or elſe draw the heads of the bones out of their cavities, chiefly if the violence of a noxious humor doth alſo concurre, which poſſeſſing and filling up the cavities of the joynts, puts them from their ſeats, as it oft times happens to the joynt of the hip by Sciaticaes, and to the *Vertebræ* of the ſpine, by whoſe Luxation people become gibbous, or otherwiſe crooked. But externall cauſes of Diſlocations are, fals from high, bruiſing and heavie blowes, the Rack, Strappado, ſlipping in going, and all ſuch like things, which may force the heads of the bones to fly out of their ſeats, or cavities, which alſo happens ſomtimes to infants in their birth, when as they are too careleſly and violently drawne forth by the Midwife, ſo that eyther their armes or legges are put out of joynt. Hereditarie cauſes are ſuch as the Parents transfuſe into their off-ſpring: hence it is, that crooked not neceſſarily, but often times are generated by crooked, and lame by lame. The truth whereof is evident by daily experience. Beſides alſo Hippocrates himſelfe averres, that infants in the very wombe may have their Joynts diſlocated by a fall, blow and compreſſion, & by the too much humidity and looſenes of the Joynts: whence alſo we ſee many crooke legg'd and footed from their nativitie; ſo that none need marvell or make any doubt hereof. We have read it obſerved by Galen *In librum de Artic.* that children may have impoſtumes in their mothers wombs, which may caſt forth quitture, the ulcers being opened of their own accord, and be cicatrized by the only benefit of nature. It alſo happens to many from their firſt conformation, that the cavities of their Joynts are leſſe depreſt than they ſhould bee, and that their verges are more dilated than they ought to be ; whereby it happens that the heads of the bones can the leſſe enter into them. It fals out, that otherſome have the ligaments, appointed by nature for faſtening together the bones of the joynt, whether inſerted or placed about, ſo weake, that from their firſt originall they are not of ſufficient ſtrength, or elſe abound with much phlegme, eyther bred together with them, or flowing from ſome other place; ſo that by their too much ſlipperineſſe they leſſe faithfully containe the knittings or articulations of the bones. In all theſe, as the bones are eaſily diſlocated, ſo they may preſently be eaſily reſtored without the aſſiſtance of a Surgeon, as I have ſometimes obſerved in ſome.

CHAP. IIII.

The ſignes of diſlocations.

The common ſigne of all diſlocations.

SOme of the ſignes whereby we come to the knowledge of a luxated bone, are common to all diſlocations; others are proper only to ſeverall Luxations. It is a common ſigne, that there is alwaies a tumor in that part whereto the bone runnes, and a hollowneſſe on that ſide from whence it is flowne. Now the proper ſignes ſhall be ſhewed, when as we come to treat of the particular kindes of Luxations. We know a perfect Diſlocation by the loſt action of the part, that is to ſay, the loſt motion; paine alſo breeds a ſuſpicion of a diſlocation: for the head of the bone, which (moved out of its place) is forced into another, preſſes the fleſh, and diſtends the nerves alſo moved out of their place. Hereto alſo conduces the comparing of the ſound joynt with that which is hurt, in which collation, it is fit the ſound part, which is compared with the hurt, be no waies, neyther by nature nor any accident, wronged, nor deformed, nor withered or decayed, nor ſwolne above meaſure, otherwiſe it may cozen and deceive you, if you bee leſſe warie. Labour and difficultie of action in moving, is a ſigne of an uncomplete Luxation, or ſtrain. Now we thus know, that the ligaments, ſerving to the connexion of the articulations, are extended and relaxed, if the head of the bone, preſſed with your fingers, be eaſily driven unto the contrary part, and ſuddenly flye thence backe againe; if thruſting your finger into the joynt, it eaſily enter, nothing reſiſting it, as though all were empty within; if the motion be difficult, or none at all.

Signes of an unperfect diſlocation.

CHAP. V.

Of Prognoſticks to be made upon luxations.

What luxations be uncureable.

ALl Joynts may bee perverted or luxated, but all of them cannot in like manner be reſtored. For the head may be diſlocated, but therupon preſent death enſues, by reaſon of the compreſſion of the whole ſpinall marrow preſently at the originall thereof; ſuch alſo is the diſlocation of a *vertebra* of the ſpine, and of the Jaw-bone, which, ſlipped forth on both ſides, hath cauſed inflammation, and a great tumor before that it be ſet. The bones of other Joynts, as they are more or leſſe diſlocated, and moved out of their ſeats, ſo may they bee more eaſily or difficultly reſtored. For, by how much they are the leſſe moved out of their places, by ſo much they are the more quickly, and by how much they are the further, by ſo much they are the more ſlowly and difficultly ſet. Alſo an indication, taken from the figure of the luxated bone, gives a ſigne of the eaſie or hard reſtoring of the diſlocation; as in the Arme, by how much the bones be the more eaſily diſlocated, by ſo much once luxated they are the more eaſily reſtored. Bones doe not eaſily fall out of joynt in fleſhie bodies; but when they chance to be put out, they are not eaſily got in againe. For in ſuch, the articulation is ſtraitly on everie ſide held in by the thickneſſe of the muſcles, and the plenty of the

Why thoſe bones which are hardly diſlocated, are hard to be ſet.

the fat lying thereabouts. On the contrarie, ſuch as are leane, eſpecially thoſe who formerly have beene more fat, have their joynts more laxe, whereby it comes to paſſe, that their bones may eaſily be put forth of joynt: beſides alſo, through the default of the digeſtive facultie, they have their joynts replete with mucous humors; whence it is, that the heads of the bones, as ſtanding in a ſlipperie place, are the leſſe ſtable, as it is recorded by Hippocrates.

Sect.1.de artic. ſent.29.

But ſlender bodies, which are naturally dry, compact and denſe, have their muſcles and ligaments more ſtrong and dry; wherefore their bones are the more difficultly diſplaced; and diſplaced, the more difficultly ſet. Some bones, joyned amongſt themſelves, doe ſometimes flye aſunder, as when the ſhoulder blade flyes from the collar-bone at the *Acromion*, and in the Arme the Ell from the Wand, and in the Legge the one focile from the other, and the Heele-bone from the Ancle.

Celſus lib.8. cap.11.

Bones thus ſeparated will never be joyned together againe, will never recover their former comely figure, never their ſtrength of action. For, then it moſt uſually happens, that the ligaments are either broke aſunder, or elſe reſolved and become laxe. Thoſe whoſe bones are diſlocated by an externall cauſe, they, after they be ſet, may eaſily fall out againe, for that the ligaments, moyſtened and bedewed with an excrementitious humor, cannot firmely hold them: oft times the ligaments are not wholly broken, but onely in ſome portion thereof; and hence the action of the part either periſhes, or is debilitated. Alſo that diſlocation is uncureable, when as the ligaments, ſteeped and ſwolne up with an excrementitious humiditie, are ſo much ſhortened and contracted in their length, as they have acquired in their breadth: and thus they draw away and plucke off the *appendices* of the bones from whence they ariſe, and by reaſon the bone and the *appendix* doe enter and receive each other by manie cavities and prominencies, therefore they cannot, by how ſkilfull hand ſoever they be handled, be againe fitly placed and put together.

Why the plucking of an *appendix* from a bone is uncureable.

Old and inveterate diſlocations, wherin a tough humor poſſeſſing the cavitie is concrete in ſtead of the head of the bone, are not to be reſtored; as neither when the heads of the luxated bones have by continuall attrition made themſelves a new cavitie in the neighbouring bone: neither if they be reſtored, is the reſtitution firme and of continuance; becauſe the naturall cavitie is poſſeſſed by another matter, and the new made neare thereto cannot well and faithfully containe the received head of the bone. Thoſe who have their ſhoulder diſlocated, may uſe their hand for many actions, as well as the oppoſite ſound hand; for the weight of the bodie is not ſuſtained by the hands, as it is by the legs. And by how much the hand is the more exerciſed, by ſo much the arme becoms the more corpulent. Contrarily, if the thigh-bone bee diſlocated, eſpecially if it bee wreſted inwards, the whole legge quickly decayes by an *atrophia*, becauſe the part doth abſolutely loſe all motion: for by the opinion of Hippocrates, the performance of the proper action encreaſes ſtrength, and makes the part in better plight; but idleneſſe debilitates and makes it leane.

Hipp.ſent.88. ſect.3.de art.

If a great wound and fracture bee joyned with a Luxation, there is danger, leſt while wee uſe extenſion for reſtoring the part, we draw the nerves too violently, and ſo break the nerves, veines and arteries, whence would enſue feare of inflammation, convulſion, and other maligne ſymptomes. Wherefore Hippocrates judges it better in ſuch a concourſe and complication of preternaturall affects, abſolutely not to meddle at all with the ſetting of the diſlocated bone: for, by attempting the reſtitution, certaine death; but by omitting it only lameneſſe is to be feared.

Sent.10 ſect.5. lib.6.epid & ſect. 3. de art. ſent 88.

You muſt not endevour to ſet an inflamed joynt.

Everie diſlocation muſt be reſtored before inflammation come; but if it be already preſent, you muſt preſently be carefull to take it away. For other things, let the Patient reſt, leſt if the affect be irritated, the increaſe and exceſſe of paine cauſe a convulſion, gangrene, and laſtly death, as I remember I have ſomtimes obſerved. Therfore when inflammation, and other maligne ſymptomes ſhall be mitigated and corrected, then may you endeavour to reſtore the luxation, eſpecially if the habit of the bodie and member affected may admit it. For if the bodie be ſlender, delicate and tender, then the reſtitution will bee more ſpeedy and facile. But on the contrarie, more difficult, if it be groſſe and compact; And let thus much ſuffice for prognoſticks in Luxations.

CHAP. VI.

Of the generall cure of Diſlocations.

Five intentions in curing diſlocations.

FOr all that I have heretofore delivered the generall methode of curing Fractures and diſlocations, yet it ſhall not bee unprofitable to repeat here in this place, thoſe things which may be accommodated to this Treatiſe of curing Luxations. Now he that will cure Diſlocations, muſt have regard to five intentions, which it will be fitting to performe in order. The firſt is, of Holding; The ſecond, of Drawing or Extending; The third, of Forcing in; The fourth, of Placing in convenient figure and ſite; The fifth, of Correcting the concomitant, or following ſymptomes.

The benefit of holding the member in diſlocations.

The uſe of extenſion.

The manner of ſetting it, or putting it into its place.

Signes that the bone is ſet.

The benefit of fit placing the member.

The manner of binding up the ſet joynt.

The cure of inveterate luxations.

The firſt ſcope, which we ſaid was of Holding, is meant eyther of the whole body, or elſe of ſome part thereof only. The whole bodie muſt bee holden by the ſtrong embracement of your ſervant or attendant, when as the ſhoulder, the *vertebræ*, or the thigh-bones are diſlocated. But in the diſlocation of the Collar-bone, elbow, hand, knee, or foote and legge, it is ſufficient onely to hold the part ſtraitly in your hands. There is neceſſitie of holding eyther the bodie, or elſe ſome part thereof, leſt, while the diſlocated bone is extended, the whole bodie follow by continuance of parts, if there be nothing which may hinder: for if the bodie ſhould follow him that drawes or extends, all the work-maſters labour and endeavour to reſtore it, is to no purpoſe. The uſe of the ſecond ſcope, that is, of Drawing or Extending, is, that there may be a free ſpace and diſtance betweene the luxated bones, by which diſtance the diſlocated bone may the more freely be forced into its cavitie. But the manner of drawing or extending is different in quantity and manner, according to the various ſtrength of the muſcles and ligaments, and diſlocation of the bones to this or that part. Therefore this worke is almoſt alwaies performed by the hands; which when they cannot ſuffice, we muſt uſe the aſſiſtance of inſtruments and engins, whoſe figures you ſhall ſee hereafter delineated. But that you may not doe amiſſe, you may ſo farre uſe extenſion, untill the head of the bone be brought juſt againſt its cavitie. When the Surgeon hath brought it to this paſſe, then muſt he haſten to the third intention, which is, to put the head of the bone firſt moved and gently bended, into its cavitie. For hee muſt have a ſpeciall care, that hee force it no other way than into its proper cavity: for it would be dangerous, leſt he ſhould turne it from one extreme into another, and the bone, for examples ſake, of the thigh, which was diſlocated into the forepart by too violent forcing, by exceeding the middle cavitie, may be driven and diſlocated into the hinder part. To ſhun this, the bone ſhall be put backe the ſame way that it fell out, which may bee eaſily done in freſh and late happening diſlocations. We underſtand that the bone is ſet by the noyſe, or as it were a popp, or ſound like that, which ſolid and ſounding bodies, being fully and forcibly thruſt into their cavities, do make; by the ſimilitude and conſent in figure, magnitude and all conformation of the affected part with the ſound, and laſtly, by the mitigation of the paine. The fourth ſcope, which is of the convenient ſite of the part, muſt bee ſo fulfilled, that the bone after it is ſet may bee kept in its cavity, and not flye forth againe. Wherefore if the arme be diſlocated, it ſhall be carried bound up in a ſcarfe: if the thigh, knee, legge, or foote be luxated, they ſhall be fitly layd in a bed; but in the *interim* the Surgeon, preſently after hee hath ſet them, ſhall have a care, that the affected joynt be wrapped about with ſtoups and clothes, or compreſſes ſteeped in roſe vinegar, and ſpred with convenient medicines; then let it be bound with an artificiall deligation, rowling the ligatures unto the part contrary to that whereto the diſlocated bone flew. For the which purpoſe thicker boulſters ſhall be there applied whence the bone came out, otherwiſe there will be ſome danger, leſt it ſhould be againe diſplaced: when theſe things are done, he ſhall for foure or five dayes ſpace meddle with nothing about the Diſlocation, unleſſe paine, or ſome ſuch like ſymptome happen. For then the fifth ſcope will call us from that ceſſation and reſt, which is, to correct the ſymptomes and complicate affections, as paine, inflammation, a wound, fracture, and others, whereof wee have ſpoken abundantly in our Treatiſe of Fractures. Before wee attempt to ſet inveterate diſlocations, wee muſt endevour to humect the ligaments, tendons and muſcles by fomentations, cataplaſmes, emplaiſters, liniments, and other remedies, that ſo theſe parts may be more obedient to the Surgeons hand: then muſt the diſlocated bones be moved, with a gentle motion up and down, to and againe, that by this meanes the excrementitious humor, which by continuance of time hath flowed downe, may waxe hot, be attenuated, reſolved or made ſlipperie, and alſo the fibres of the muſcles, ligaments, and nervous bodies, placed about the joynt for the defence thereof, may be looſed, that ſo they may preſently be more freely extended. But if a great ſwelling, paine and inflammation urge, we muſt firſt think of aſſwaging and curing them, then of the reſtoring the Diſlocation.

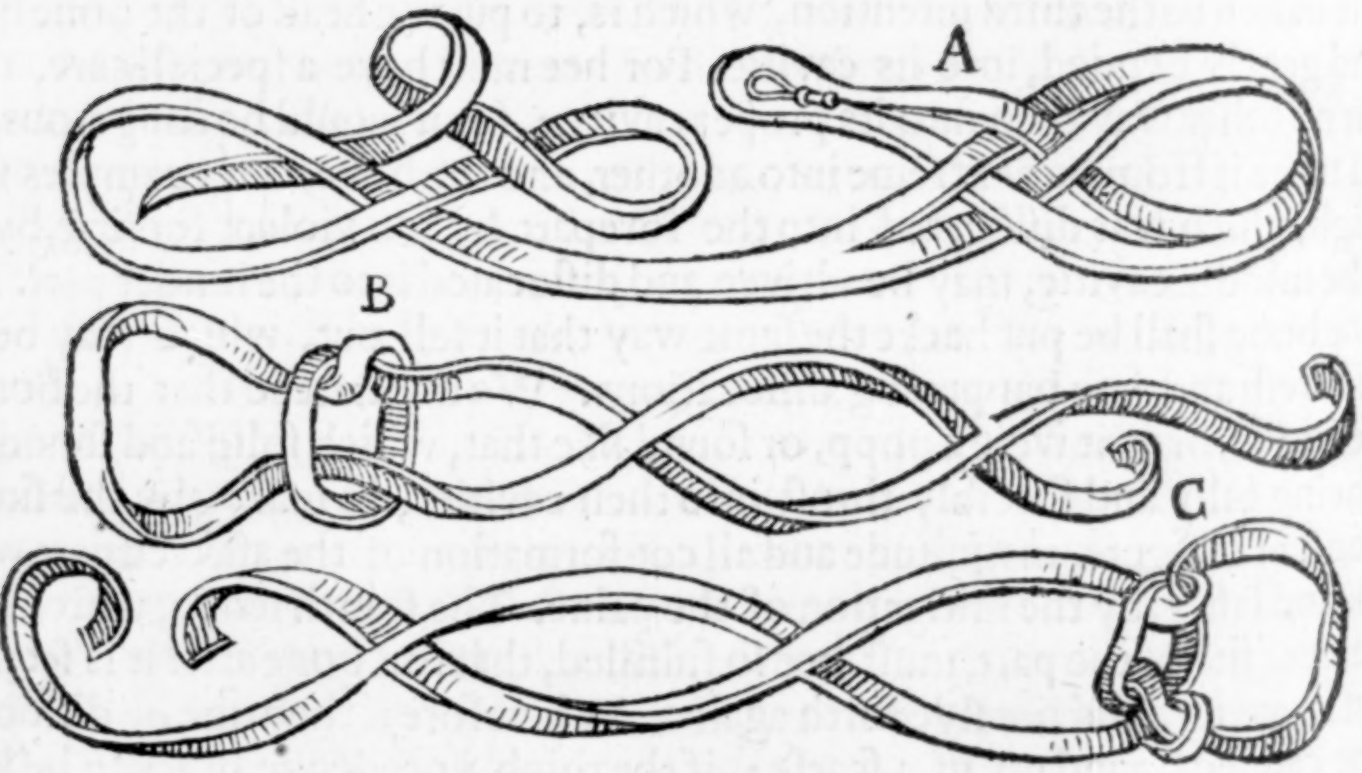
CHAP. VII.

The deſcription of certaine engines, ſerving for the reſtoring of Diſlocations.

Theſe ligatures are not for deligation, but extenſion.

BEfore I come to the particular kinds of Diſlocations, I think it not amiſſe to deſcribe three ſorts of Bandages, and give you their figures, as thoſe which are moſt fit to hold and extend Diſlocations. The firſt Ligature, deſigned by this letter *A*, is made for holding the member. The ſecond, marked with the letter *B*, is fit for drawing or extenſion, and conſiſts of one knot. The third, whereto the letter *C* is put, conſiſting of two knots, is to hold or binde more ſtraitly.

The delineation of the three Ligatures.



I have thought good alſo to delineate the following Engine, made for to draw and extend more powerfully, when the hand will not ſerve. It is made like a Pulley, marked with theſe letters *DD*. Within this there lye hid three wheeles, through whoſe furrowes runnes the rope which is to be drawue, marked with this letter *H*. At the ends of the Pulley are hooks faſtened, the one of which is to faſten the Pulley to a Poſte, the other is to draw the ligature faſtened to the part. The Boxes or Caſes wherein the Pulley is kept, is maked with *BB*. Their covers are marked with *AA*. A ſcrew pin which may be twined, and ſo faſtened to a Poſte, that ſo one of the ends of the Pulley may be hooked thereto, is ſigned with *C*. A Gim-

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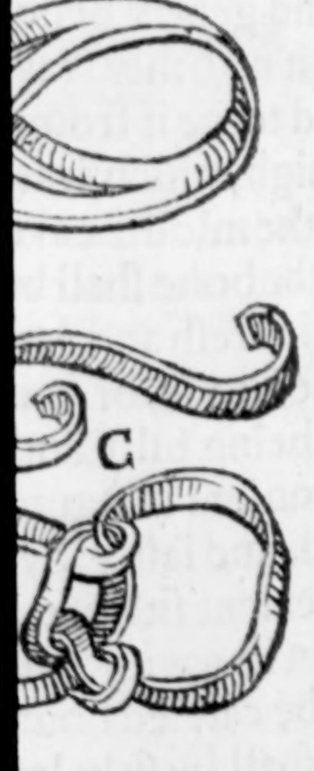

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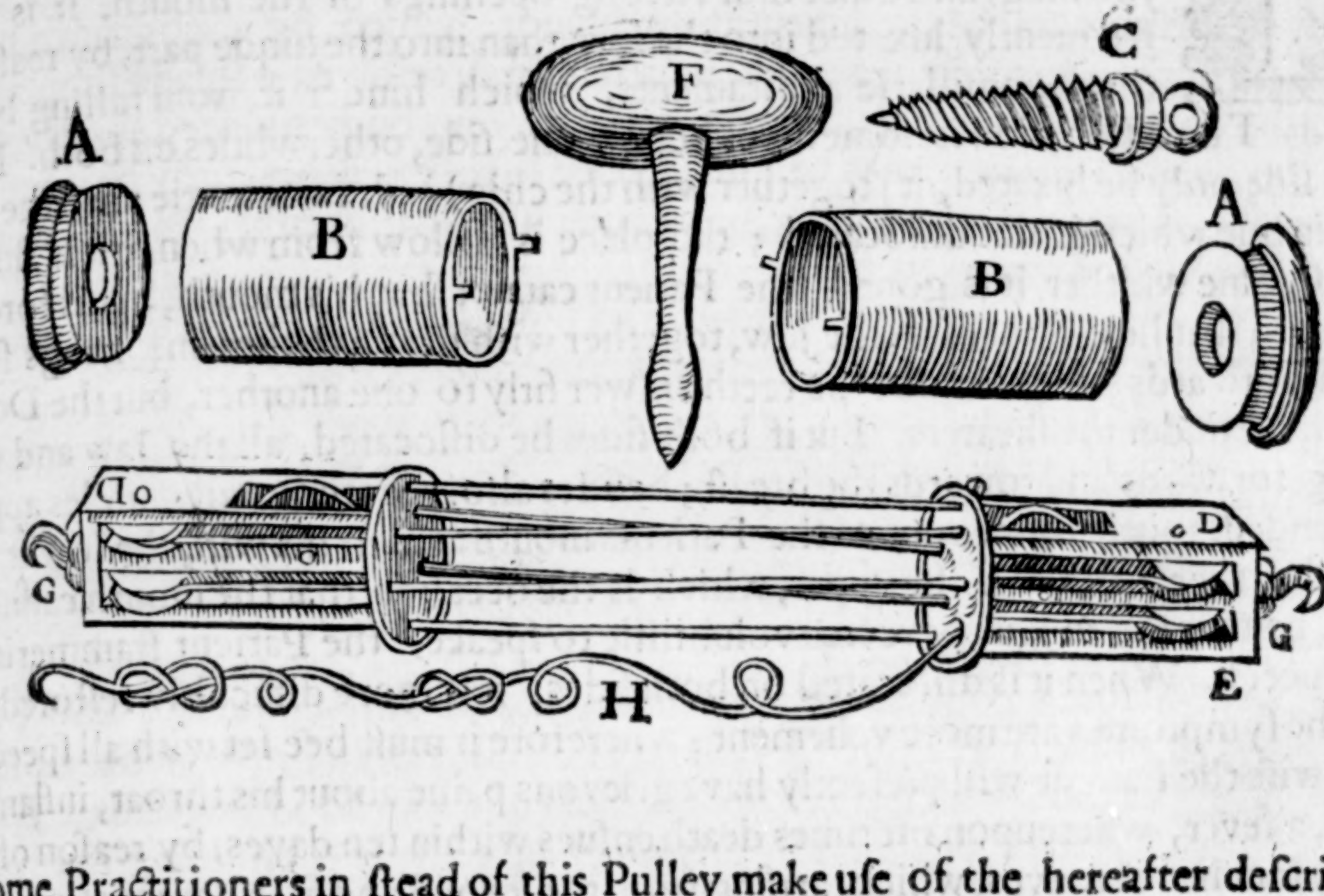
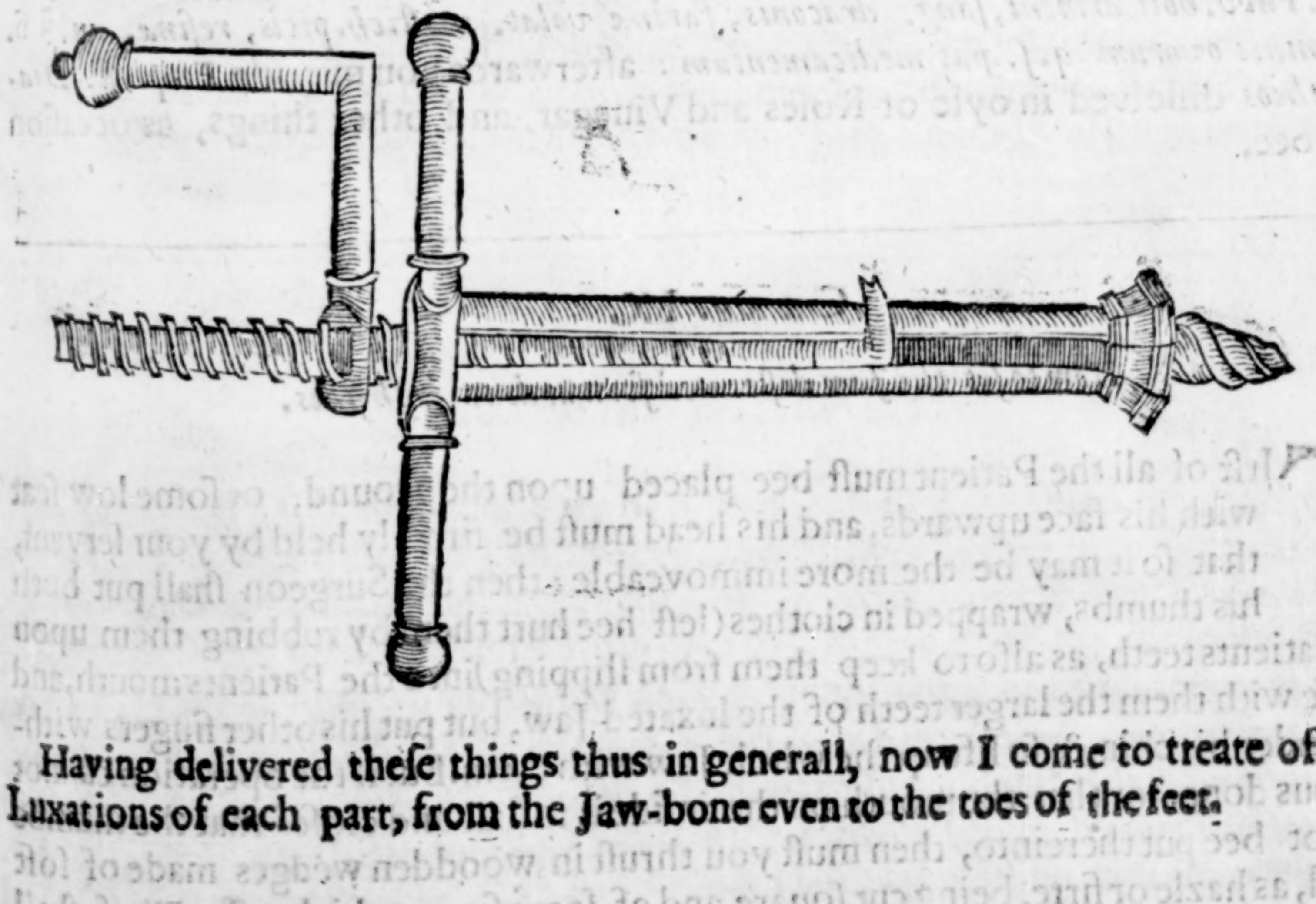
let (marked by *F.*) to make a hole in a Poſte, ſo to let in the ſcrew pin. You may ſee all theſe things expreſt in this following figure.

A Pulley.



Some Practitioners in ſtead of this Pulley make uſe of the hereafter deſcribed Inſtrument, which they terme *Manubrium verſatile*, or a Hand-vice. The end thereof is faſhioned like a Gimblet, and is to be twined into a Poſte. Within that handle lyes a ſcrew with a hooked end, whereto the ſtring or ligature muſt be faſtened. Now the ſcrew-rod or male-ſcrew runnes into the female by the twining about of the handle: and thus the ligature is drawne as much as will ſuffice, for the ſetting the diſlocated bone.

Manubrium verſatile, or, *A Hand-vice.*



Having delivered theſe things thus in generall, now I come to treate of the Luxations of each part, from the Jaw-bone even to the toes of the feet.

CHAP.

CHAP. VIII.

Of the Diſlocation of the Jaw-bone.

The cauſes.

Differences.

Signes that only one part is diſlocated.

Signes that both ſides are diſlocated.

Prognoſticks.

Why death quickely enſues upon the diſlocation of both ſides of the jaw.

THe Jaw-bone is diſlocated by many occaſions, and not ſeldome by yawning, and other more ſtrong openings of the mouth. It is more frequently luxated into the fore, than into the hinde part, by reaſon of the mammillarie additaments, which hinder it from falling backewards. The diſlocation is ſometimes but on one ſide, otherwhiles on both. If the one ſide only be luxated, it (together with the chin) is drawne awrie unto the contrarie ſide which is not diſlocated; the place is hollow from whence it is flowne, but ſwolne whither it is gone; the Patient cannot ſhut his mouth, but is forc't to gape, ſo that he cannot eate; the Jaw, together with the teeth therein, hangs ſomewhat forwards; neyther doe the teeth anſwer fitly to one another, but the Dogge-teeth are under the ſhearers. But if both ſides be diſlocated, all the Jaw and Chin hang forwards and towards the breaſt; beſides alſo, the temporall muſcles appeare diſtended, ſpittle runnes out of the Patients mouth againſt his will, the lower teeth ſtand further forth than the upper, which is the occaſion that the mouth cannot be ſhut, neither the tongue have free volubilitie to ſpeake, the Patient ſtammering in his ſpeech. When it is diſlocated on both ſides, it is more difficultly reſtored, and all the ſymptomes are more vehement; wherefore it muſt bee ſet with all ſpeed, otherwiſe the Patient will preſently have grievous paine about his throat, inflammation, a fever, whereupon oft times death enſues within ten dayes, by reaſon of the five branches of nerves, which, ariſing from the ſecond and fifth conjugation of the braine, are diſtributed into the moving muſcles thereof, which, too violently extended, bring the forementioned ſymptomes. Practitioners affirme, that the Jaw, twelve dayes after it is ſet, is free from the danger of relapſe. If it have beene diſlocated ſome few daies, before you goe about to reſtore it, you muſt uſe ſoftening and relaxing medicines to it: but when it is put in the joynt, apply a medicine made of the whites of egges, and oyle of roſes, to aſſwage paine, and apply clothes dipped in oxycrate. At the ſecond dreſſing you ſhall apply ſuch things as have power to agglutinate and ſtrengthen the ligaments and other relaxed parts, and alſo to keep it being reſtored in its place. This ſhall be the forme of ſuch a medicine.

An aſtringent medicine.

℞. *Pulv. boli armeni, ſang. draconis, farinæ volat. maſtich. picis, reſinæ, an.* ℥.ß. *albuminis ovorum q.ſ. fiat medicamentum:* afterwards you may uſe *Emplaſt. Diacalcitheos* diſſolved in oyle of Roſes and Vinegar, and other things, as occaſion ſhall bee.

CHAP. IX.

How to ſet the Jaw diſlocated forwards on both ſides.

The firſt maner of ſetting a jaw-bone.

Another.

FIrſt of all the Patient muſt bee placed upon the ground, or ſome low ſeat with his face upwards, and his head muſt be firmely held by your ſervant, that ſo it may be the more immoveable: then the Surgeon ſhall put both his thumbs, wrapped in clothes (leſt hee hurt them by rubbing them upon the Patients teeth, as alſo to keep them from ſlipping) into the Patients mouth, and preſſe with them the larger teeth of the luxated Jaw, but put his other fingers without under his chin, & ſo lift up the whole Jaw with them. But if the operation cannot be thus done, for that the mouth on the inſide is ſo ſhut and cloſed that the thumbs cannot bee put thereinto, then muſt you thruſt in woodden wedges made of ſoft wood, as hazle or firre, being cut ſquare, and of ſome fingers thickneſſe. Theſe ſhall bee wedged in on each ſide above the grinders; then caſt a ligature under his chin, whoſe ends your ſervant ſhall hold in his hands, and ſetting his knees upon the Patients ſhoulders, ſhall pull them upwards; then at the ſame time the Surgeon ſhall preſſe downwards the woodden wedges. The Jaw-bones thus reſtored, ſhalbe kept ſo by convenient ligation, and dreſſed with medicines, as it is fitting; and in the meane ſpace you muſt forbid the Patient to ſpeake, or needleſly to open his mouth. Wherefore he muſt abſtaine from hard meats, and ſuch as require much chewing, untill his paine be quite paſſed, and uſe only ſpoone-meats, as Barley-creames, panadoes, jellies, cullaſſes, brothes, and the like.

Diet.

CHAP. X.

Of reſtoring the Jaw diſlocated forwards but on one ſide.

THe Patient muſt be placed on a lowe ſeate, ſo that hee may be under the Surgeon; then your ſervant, ſtanding at his back, ſhall hold his head firme and ſteddie, that it may not follow the Surgeon drawing, extending, and doing other things neceſſarie for reſtoring it. Then the Surgeon, putting his thumb between the grinders, ſhall preſſe down the Jaw, and gently drawing it aſide, force it into its cavitie: in the meane while, alſo the Patient, as much as in him lyes, ſhall helpe forwards the Surgeons endevour, in opening his mouth as little as he can, leſt the muſcles ſhould bee extended; and hee ſhall only gape ſo wide as to admit the Surgeons thumbe, for ſo the temporall muſcles ſhall be reſtored to their place, and favour the reſtitution. If hee open his mouth as wide as hee can, they will be extended after a convulſive manner; if on the contrarie he ſhut his teeth too cloſe, there will be no paſſage for the Surgeons Thumbe unto his grinding teeth. Some there bee which affirme, that the Jaw-bone may ſometimes be diſlocated towards the hinde part, and that then the mouth is ſo cloſe ſhut, that the Patient cannot open it nor gape, and that the lower ranke of teeth ſtands further in, and nearer the throat than the upper. Now for reſtoring it, the Patients head muſt be ſtraitly holden behinde, whilſt the Surgeon, the meane while putting both his thumbs into the Patients mouth, holding his other fingers without under the parties chin, hee ſhall, by ſhakng it, draw it to him, or forwards, and ſo reſtore it to its place. For my own part, I confeſſe I never ſaw this kinde of Luxation, and I eaſily perſwade my ſelfe, that it can ſcarce ever happen, for the reaſon I gave in the former Chapter. But nevertheleſſe, if it by any meanes chance to happen, yet can it not be a perfect Luxation, but an imperfect one; the Jaw being onely but a little thruſt backe to the throat to thoſe mammillarie additaments. And then it may eaſily be reſtored by lifting or drawing forth the Jaw, and ſuddenly forcing it from below upwards.

What the Surgeon.

What the Patient ought to do.

Signes that the Jaw is diſlocated backwards.

The Cure.

CHAP. XI.

Of the Luxation of the Collar-bone.

AS the Collar-bones may be broken, wreſted and crooked, ſo alſo they may be diſlocated. Now they are diſlocated, either againſt the *ſternum*, or againſt the ſhoulder-blade, or *acromion* thereof: yet both theſe kinds of diſlocations are very rare, by reaſon of the ſtrait and firme connexion which the Collar-bone hath with the foreſaid parts; but chiefly where it is joyned to the *ſternum*, it can ſcarce be depreſt, for that it is as it were underpropt with the firſt rib. But it may be diſlocated inwardly, outwardly, and ſide-wiſe, and according to this varietie there muſt be divers waies to reſtore it; yet generally the Collar-bone is put into its place by moving or extending the arme. But if need require, the Patient ſhall be layd upon the ground with his face upwards, a Tray with the bottome upwards, a hard ſtuffed Cuſhion, or the like thing being put under his ſhoulders: for thus it wil ſo come to paſſe, that the ſhoulder and

Differences of the luxated Collar-bones.

The Cure.

cheſt

Com.ad ſent. 61.ſect.1.de art.

cheſt will ſtand ſo forth, that preſently by lifting up, by preſſing downe, or drawing forth the arme forwards or backwards, as the bone ſhalbe flowne out to this or that part, you may reſtore it; for thus the prominencie may bee forced into its cavitie. But it will be requiſite to binde it up, and lay boulſters thereon, and to give it reſt, as if it were fractured. Galen writes, that when hee was five and thirtie yeares old, whilſt he exerciſed himſelfe in the place of Exerciſe, his Collar-bone was ſo farre ſeparated from the *Acromion*, that there was the ſpace of three fingers betweene them. And that this Luxation was reſtored in fortie dayes ſpace, by ſo ſtrait and ſtrong a Ligation, that he perceived the motion of the beating arteries under the bone. But you ſhall finde verie few, who will ſuffer ſuch ſtrait ligation ſo long, though it be never ſo neceſſarie. Verily, this kinde of Luxation is hard to be known, but farre more difficult to be healed. I have known many Surgeons deceived, who have taken the Luxation of the Collar-bone for the diſlocation of the top of the ſhoulder. For then the *Epomis* or toppe of the ſhoulder ſwels, and the place from whence the Collar-bone is flowne, is depreſſed with a manifeſt cavity, with vehement paine, inflammation, and impotencie of lifting up, or otherwiſe moving the arme, or performing other actions which are done by the helpe of the ſhoulder. Certainly, if this bone, when it is diſlocated, be not ſet, the Patient ſhall be lame during his life, ſo that hee ſhall not bee able, neyther to put his hand to his head nor mouth.

Chap.XII.

Of the Luxation of the Spine, or Back-bone.

An anatomicall deſcription of the Spine.

THe Backe-bone conſiſts of many bony *vertebræ*, like rowles or wheeles mutually joynted or knit together, by their ſmoothneſſe and circular forme conſpiring to an aptneſſe of moving or bending forwards. For if it ſhould conſiſt of one bone, we ſhould ſtand continually with the trunk of our bodies immoveable, as thruſt thorough with a ſtake. The *vertebræ* have a hole paſſing through the midſt of them, whereby the marrow, paſſing this way out from the braine as by a pipe, may ſerve for the generation of the ſenſitive and motive nerves, and their diſtribution into all parts beneath the head. For which purpoſe it is perforated with many holes on the ſides, through each whereof certaine conjugations of the nerves paſſe forth into the reſt of the body, and veines and arteries paſſe in for the propagation of nouriſhment and life. The whole exteriour face of the Spine is rough, and as it were armed with foure ſorts of *apophyſes* or proceſſes, whereof ſome ſtand up, others downe; ſome direct, others tranſverſe. Wherefore from theſe thornie and ſharpe proceſſes, the whole hath acquired the name of the *Spina*. The *vertebræ* the further from the neck they are, the greater they grow, ſo that thoſe which are the loweſt, are the largeſt: for it is agreeable to reaſon, that that which beares, ſhould be bigger than that which is borne. Hence we ſee, that the Holy-bone is placed under the reſt as a foundation. The ſide proceſſes of the Rack-bones of the Cheſt, beſides the benefit of defending the ſpinall marrow ſhut up therein from externall injuries, have alſo another, which is, they firme and faſten the bones of the ribbs by a ſtrong tye. There lyes a griſtle, and a tough, and (as it were) albuminous humor betweene the *vertebræ*, which makes them, as alſo all the other joynts of the bodie, ſlipperie, and fit for motion: the Spine is flexible with notable agilitie forwards onely, but not backewards, for that ſo there would be continuall danger of breaking the Hollow aſcendent veine, and the great deſcending arterie running thereunder. Therefore the dearticulations of the *vertebræ*, mutually ſtrengthned with ſtrong ligaments, doe looke more backewards. I have thought good to premiſe theſe things of the nature of the Spine, before I come to the Diſlocations happening thereto: I willingly omit divers other things which are moſt copiouſly delivered by Galen, content onely to adde thus much;

The variety of the proceſſes of the Spine.

Gal.cap.7.lib.13. de uſu partium.

Lib.13. de uſu partium.

much; That there is nothing to bee found in the whole ſtructure of Mans bones, which more clearly manifeſts the induſtrie of Gods great workmanſhip, than this compoſure of the Spine and the *vertebræ* thereof.

Chap. XIII.

Of the Diſlocation of the Head.

The connexion of the head with the firſt Rack-bone of the necke.

Prognoſticks.

THe head ſtands upon the necke knit by dearticulation to the firſt *vertebra* thereof, by the interpoſition of two proceſſes which ariſe from the *baſis* thereof, neare the hole through which the marrow of the braine paſſes downe into the backe bone, and they are received by fit cavities, hollowed in this firſt *vertebra*. Theſe proceſſes ſometimes fall out of their cavities, and cauſe a diſlocation behinde, whereby the ſpinall marrow is too violently and hard compreſſed, bruiſed and extended, the chin is faſtened to the breaſt, and the Patient can neyther drinke nor ſpeake: wherefore death ſpeedily followes upon this kinde of Luxation, not through any fault of the Surgeon, but by the greatneſs of the diſeaſe, refuſing all cure.

Chap. XIV.

Of the Diſlocation of the vertebræ, *or Racke-bones of the necke.*

The danger hereof.

Signes and ſymptomes of their ſubluxation.

The Cure.

Signes of their reſtitution.

THe other *vertebræ* of the necke may bee both diſlocated and ſtrained. Diſlocation verily, unleſſe it be ſpeedily helped, brings ſudden death: for, by this meanes the ſpinall marrow is preſently oppreſt at the verie originall thereof, and the nerves, there-hence ariſing, ſuffer alſo together therewith, and principally thoſe which ſerve for reſpiration; whereby it commeth to paſſe, that the *animal* ſpirit cannot come and diſperſe its ſelfe into the reſt of the bodie lying thereunder; hence proceede ſudden inflammation, the ſquinſie, and a difficultie, or rather a defect of breathing. But a ſtraine or incomplete Luxation brings not the like calamitie: by this the *vertebræ*, a little moved out of their ſeats, are turned a little to the hinde or forepart, then the necke is wreſted aſide, the face lookes blacke, and there is difficultie of ſpeaking and breathing. Such, whether diſlocation or ſtraine, is thus reſtored. The Patient muſt be ſet upon a lowe ſeat, and then one muſt leane and lye with his whole weight upon his ſhoulders; and the meane while the Surgeon muſt take the Patients head, about his eares, betwixt his hands, and ſo ſhake and move it to everie part, untill the *vertebra* be reſtored to its place. We may know it is ſet by the ſudden ceaſing of the pain, which before grievouſly afflicted the Patient, and by the free turning and moving his head & neck everie way. After the reſtoring it, the head muſt be inclined to the part oppoſite to the Luxation, and the neck muſt bee bound up about the dearticulation of the ſhoulder; but yet ſo, that the ligature bee not too ſtrait, leſt by preſſing the weazon and gullet, it ſtraiten the paſſages of breathing and ſwallowing.

Chap. XV.

Of the Diſlocated Vertebræ *of the Back.*

Differences and ſignes.

Cauſe.

THe Rack bones of the backe may bee diſlocated inwards, outwards, to the right ſide, and to the left. We know they are diſlocated inwards, when as they leave a depreſſed cavitie in the ſpine; outwardly, when they make a bunch on the backe; and wee know they are luxated to the right or left ſide, when as they obliquely bunch forth to this or that ſide. The *vertebræ* are diſlocated by a cauſe eyther internall, or externall, as is common to all other Luxations; the internall is eyther the defluxion of humors from the whole bodie, or any part to them and their ligaments; or elſe a congeſtion proceeding from the proper and native weakeneſſe of theſe parts; or an attraction ariſing from paine and heat. The externall is a fall from high upon ſome hard bodie, a heavie and bruiſing blow, much and often ſtooping, as in Dreſſers and Lookers to Vineyards, and Paviers, decrepite old men; and alſo ſuch, as through an incureable diſlocation of the Thigh-bone, are forced in walking to ſtoope downe, and hold their hand upon their thigh. But a *vertebra* cannot be forced or thruſt inwards, unleſſe by a great deale of violence; and if it at any time happen, it is not but with the breaking of the tyes and ligaments, for they will breake rather than ſuffer ſo great extenſion. Such a diſlocation is deadly, for that the ſpinall marrow is exceedingly violated by too ſtrait compreſſion, whence proceeds dulneſſe, and loſſe of ſenſe in the members lying thereunder. Neyther is reſtitution to bee hoped for, becauſe wee cannot through the belly force it into its place: the urine is then ſuppreſt, as alſo the excrements of the belly; ſometimes on the contrarie, both of them breake forth againſt the Patients minde, the knees and legges grow cold, their ſenſe and motion being loſt. Such things happen more frequently, when the ſpine is luxated inwards, than when it is diſlocated outwards, for that the nerves, thence ariſing, runne and are carried more inwardly into the bodie. Beſides, the preſſed Spinall marrow becomes inflamed; and that being inflamed, the parts of the ſame kinde, and ſuch as are joyned thereto, are alſo inflamed by conſent, whence it happeneth, that the bladder cannot caſt forth the urine. Now where the ſinewes are preſſed, they can no more receive the irradiation of the animal facultie. Hence followes the deprivation of the ſenſe and motion in the parts whereto they are carried, therefore the contained excrements doe no more provoke to expulſion by their troubleſome ſenſe, neither are preſſed to keep them in; thence proceeds their ſuppreſſion, and hence their breaking forth againſt their wils. But the ſpine outwardly diſlocated, ſcarce cauſes any compreſſion of the marrow or nerves.

The danger of a *vertebra* diſlocated inwards.

Hipp. ſent. 51. ſect. 3. de art. & Gal. in com.

CHAP. XVI.

How to reſtore the Spine outwardly diſlocated.

The cure.

THe *vertebræ* outwardly diſlocated, when as they ſtand bunching forth, then it is fit to lay and ſtretch forth the Patient upon a table, with his face downe-wards, and ſtraitly to binde him about with towels under the arm-pits, & about the flanks and thighes. And then to draw and extend, as much as we can, upwards and downe-wards, yet without violence: for unleſſe ſuch extenſion be made, reſtitution is not to be hoped for, by reaſon of the proceſſes and hollowed cavities of the *vertebræ*, wherby, for the faſter knitting, they mutually receive each other. Then muſt you lye with your hands upon the extuberancie, and force in the prominent *vertebra*. But if it cannot be thus reſtored, then will it bee convenient to wrap two pieces of wood, of foure fingers long, and one thick, more or leſſe, in linnen clothes, and ſo to apply one on each ſide of the diſlocated *vertebræ*, and ſo with your hands to preſſe them againſt the bunching forth *vertebræ*, untill you force them backe into their ſeats, juſt after the manner you ſee it here delineated.

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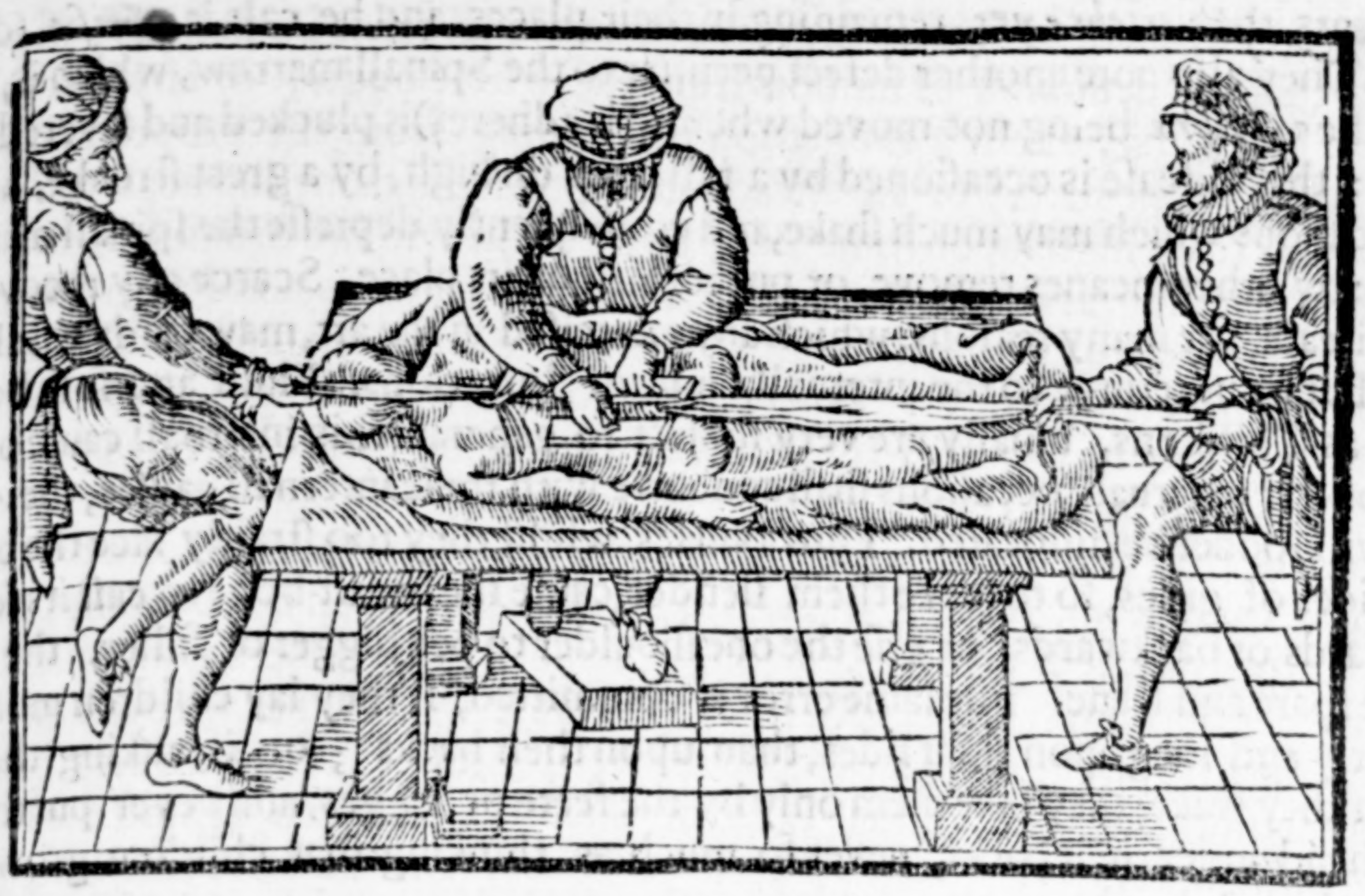

In the meane while have a care, that you touch not the proceſſes which ſtand up in the ridge of the Spine, for they are eaſily broken. You may know that the *vertebræ* are reſtored by the equall ſmoothneſſe of the whole Spine. It is fit, after you have reſtored it, to binde up the part, and lay ſplints or plates of Lead neatly made for that purpoſe upon it; but ſo, that they may not preſſe the criſts or middle proceſſes of the *vertebræ*, which I formerly mentioned, but only the ſides: then the Patient ſhall be layd upon his backe in his bed, and the ſplints long kept on, leſt the *vertebræ* ſhould fall out againe.

How to keep the reſtored *vertebræ* in their places.

Chap. XVII.

A more particular inquirie of the Diſlocation of the Vertebræ, *proceeding from an internall cauſe.*

THe *vertebræ* are in like ſort luxated by the antecedent cauſe, as wee have formerly ſaid, which is cauſed by the naturall imbecillitie of the parts; principally of the nervous ligament, by which all the *vertebræ* are bound each to other; this ligament comes not to the ſpinall marrow, but onely bindes together the *vertebræ* on their outſides. For, beſides the two membranes proceeding from the two *Meninges* of the Braine, wherewith the marrow is covered, there is a third ſtrong and nervous coate put upon it, leſt, whileſt the ſpine is diverſly bended, the bended marrow ſhould bee broken. This third coate ariſes from the *pericranium*, as ſoone as it arrives at the firſt *vertebra* of the necke. Now that Ligament, wherewith we ſaid the joynts of the *vertebræ* were mutually knit and faſtened, is encompaſſed with a tough and glutinous humor for the freeer motion of the *vertebræ*. Sometimes another cold, crude, groſſe and viſcide humor, confuſed and mixed herewith by great defluxions and catarrhes, begets a tumor, which doth not only diſtend the nerves proceeding forth of the holes of the *vertebræ*, but alſo diſtends the ligaments wherewith they are bound together: which ſo diſtended, and (as it were) drawne aſide, do draw together with them the *vertebræ*, one while towards the right ſide, another while to the left, ſomewhiles inwards, otherwhiles outwards, and thus move them out of their ſeats, and diſlocate them. A diſlocated *vertebra*, ſtanding forth and making a bunch, is termed in Greeke *Cyphoſis*, (Thoſe thus affected we may call, *Bunch-backt.*) But when it is depreſſed, it is named *Lordoſis*, (Such we may terme, *Saddle-backt.*) But when the ſame is luxated to the right or left ſide, it maketh a *Scolioſis* (or *Crookedneſſe*,) which wreſting the ſpine, drawes it into the ſimilitude of this letter S. Galen addes a fourth default of the *vertebræ*, which is, when their joynts are moved by reaſon of the looſeneſſe of their

Cyphoſis.
Lordoſis.
Scolioſis.

Com. ad ſent. 2. ſect. 3. lib. de art.

Seiſis.

The ſeparation of the ſpinall marrow from the encompaſſing *vertebræ.*

The error of Nurſes in binding and lacing of Children.

ligaments, the *vertebræ* yet remaining in their places, and he cals it a *Seiſis* (or ſhaking). They alſo note another defect peculiar to the Spinall marrow, which is, when as it (the *vertebræ* being not moved whereto it adheres) is plucked and ſevered from them: this diſeaſe is occaſioned by a fall from on high, by a great ſtroake, and by all occaſions which may much ſhake, and conſequently depreſſe the ſpinall marrow, or by any other meanes remove, or put it forth of its place. Scarce any recovers of this diſeaſe, for many reaſons, which any exerciſed in the art, may eaſily thinke upon: But let us returne to the internall cauſe of Luxations. Fluid and ſoft bodies, ſuch as Childrens, uſually are very ſubject to generate this internall cauſe of defluxion. If externall occaſions ſhall concurre with theſe internall cauſes, the *vertebræ* will ſooner be diſlocated. Thus Nurſes, whilſt they too ſtraitly lace the breaſts and ſides of girles, ſo to make them ſlender, cauſe the breaſt-bone to caſt its ſelfe in forwards or backwards, or elſe the one ſhoulder to bee bigger or fuller, the other more ſpare and leane. The ſame error is committed, if they lay children more frequently and long upon their ſides, than upon their backs; or if, taking them up when they wake, they take them only by the feete or legges, and never put their other hand under their backs, never ſo much as thinking that children grow moſt towards their heads.

Chap. XVIII.

Prognoſticks of the Diſlocated Vertebræ *of the backe.*

Hipp. ſent. 6. ſect. 3. de art.

IF in Infancie it happen that the *vertebræ* of the backe ſhall bee diſlocated, the ribbs will grow little or nothing in breadth, but runne outwards before; therefore the cheſt loſeth its naturall latitude, and ſtands out with a ſharpe point. Hence they become aſthmaticke, the lungs and muſcles which ſerve for breathing, being preſſed together and ſtraitened; and that they may the eaſlier breathe, they are forced to hold up their heads, whence alſo they ſeeme to have great throats. Now becauſe the weazon being thus preſſed, the breath is carried through a ſtrait paſſage; therefore they wheaſe as they breath, and ſnort in their ſleepe, for that their lungs, which receive and ſend forth the breath or ayre, be of leſſe bigneſſe: beſides alſo, they are ſubject to great diſtillations upon their lungs, whereby it commeth to paſſe, that they are ſhorter lived. But ſuch as are bunch-backed below the midriffe, are incident to diſeaſes of the kidneyes and bladder, and have ſmaller and ſlenderer thighes and legges, and they more ſlowly and ſparingly caſt forth haire and have beards; to conclude, they are leſſe fruitfull, and more ſubject to barrenneſſe, than ſuch as have their crookedneſſe above their midriffe. The Bunches which proceede from externall cauſes are oft times cureable; but ſuch as have their originall from an inward cauſe are abſolutely uncureable, unleſſe they be withſtood at the firſt with great care & induſtrie. Wherefore ſuch as have it by kinde, never are helped. Such as, whileſt they are yet Children, before their bodies bee come to perfect growth, have their Spine crooked and bunching out, their bodies uſe not to grow at the Spine, but their legges and armes come to their perfect and full growth; yet the parts belonging to their breaſts and backe, become more ſlender. Neither is it any wonder, for ſeeing the veines, arteries, and nerves are not in their places, the ſpirits doe neither freely, nor the alimentarie juices plenteouſly flow by theſe ſtraitned paſſages, whence leanneſſe muſt needs enſue: but the limbs ſhall thence have no wrong, for that not the whole bodie, but the neighbouring parts onely are infected with the contagion of this evill. When divers *vertebræ*, following each other in order, are together and at one time diſlocated, the diſlocation is leſſe dangerous, than if one alone were luxated. For, when one only *vertebra* is diſlocated, it carries the Spinall marrow ſo away with it, that it forces it almoſt into a ſharpe angle; wherefore being more ſtraitly preſſed, it muſt neceſſarily bee eyther broken or hurt, which is abſolutely

Why, when the ſpine is luxated, the parts belonging to the cheſt are nouriſhed and grow the leſſe.

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deadly, for that it is the braines ſubſtitute. But when divers *vertebræ* are diſlocated at once, it muſt of neceſſity be forced only into an obtuſe angle, or rather a ſemicircle; by which compreſſion it certainly ſuffers, but not ſo, as that death muſt neceſſarily enſue thereof. Hereto may ſeeme to belong that which is pronounced by Hippocrates; A circular moving of the *vertebræ* out of their places is leſſe dangerous than an angular. *Sent. 51. ſect. 3. lib. de art.*

Chap. XIX.

Of the Diſlocation of the Rumpe.

The Rumpe oft times is after a ſort diſlocated inwards by a violent fall upon the buttocks, or a great blow; in this affect the Patient cannot bring his heele to his buttockes, neither, unleſſe with much force, bend his knee. Going to ſtoole is painefull to him, neyther can he ſit unleſſe in a hollow chaire. *The ſignes.* That this (as it were) diſlocation may bee reſtored, you muſt thruſt your finger in by the Fundament, even to the place affected, as we have ſaid in a fracture: *The Cure.* then muſt you ſtrongly raiſe up the bone, and with your other hand at the ſame time joyne it rightly on the outſide with the neighbouring parts; laſtly it muſt be ſtrengthened with the formerly mentioned remedies, and kept in its place. Now it will bee recovered about the twentieth day after it is ſet. During all which time the Patient muſt not goe to ſtoole, unleſſe ſitting upon a hollow ſeat, leſt the bone, as yet ſcarce well recovered, ſhould fall againe out of its place.

Chap. XX.

Of the Luxation of the Ribs.

The Ribs may by a great and bruiſing ſtroake bee diſlocated, and fall from the *vertebræ* whereto they are articulated, and they may bee driven inwards, or ſide-waies. *Cauſes.* Of which kinde of Luxation, though there be no particular mention made by the Ancients, yet they confeſſe, that all the bones may fall, or be removed from their ſeats or cavities, wherin they are received and articulated. The ſigne of a Rib diſlocated and ſlipped on one ſide, is, a manifeſt inequality, which here makes a hollowneſſe, and there a bunching forth; *Signes.* but it is a ſigne that it is driven in, when as there is only a depreſſed cavitie where it is knit and faſtened to the *vertebræ*. Such diſlocations cauſe divers ſymptomes, as difficulty of breathing, the hurt rib hindring the free moving of the cheſt; a painfulneſſe in bowing downe, or lifting up the bodie, occaſioned by a paine counterfeiting a pleuriſie; the riſing or puffing up of the muſculous fleſh about the rib, by a mucous and flatulent humor there generated: the reaſons whereof we formerly mentioned in our Treatiſe of Fractures. To withſtand all theſe, the diſlocation muſt bee forthwith reſtored, *Cure.* then the puffing up of the fleſh muſt bee helped. Wherefore, if the diſlocated Rib ſhall fall upon the upper ſide of the *vertebra*, the Patient ſhall be ſet upright, hanging by his armes upon the toppe of ſome high doore or window: then the head of the rib, where it ſtands forth, ſhalbe preſſed downe, untill it be put into its cavity. Againe, if the rib ſhall fall out upon the lower ſide of the *vertebra*, it will be requiſite, that the Patient bend his face downewards, ſetting his hands upon his knees; then the diſlocation may be reſtored by preſſing or thruſting in the knot or bunch which ſtands forth. But if the luxated rib fall inwards, it can no more be reſtored or drawn forth by the hand of the Surgeon, than a *vertebra* which is diſlocated towards the inſide, for the reaſons formerly delivered. *Gal. Com. ad ſent. 3. ſect. 1. de art.*

Chap. XXI.

Of a Diſlocated ſhoulder.

Why there is no internall ligament from the arme-bone to the ſhoulder blade.

Differences of a luxated ſhoulder.

Sent.1.ſect.1. lib.de art.

Signes of the ſhoulder diſlocated downewards.

The waies to reſtore it.

THe ſhoulder is eaſily diſlocated, becauſe the ligaments of its dearticulation are ſoft and looſe; as alſo for that the cavitie of the ſhoulder-blade is not very deepe; and beſides, it is every where ſmooth and polite, no otherwiſe than that of the ſhoulder-bone, for that it is herein received. Adde hereunto, that there is no internall ligament from bone to bone, which may ſtrengthen that dearticulation, as is in the legge and knee. Wherein notwithſtanding, we muſt not thinke nature defective, but rather admire Gods providence in this thing; for that this articulation ſerves not onely for extenſion and bending, as that of the Elbow, but beſides, for a round or circular motion, as that which carries the arme round about, now up, then downe, according to each difference of ſite. The ſhoulder-bone, which Hippocrates cals the Arme-bone, may be diſlocated foure manner of waies; upwards, downe-wards, or into the Arme-pit, forwards and outwards, but never backwards, or to the hinde part. For, ſeeing that there the cavitie of the blade-bone, which receives the head of the arm-bone, which Hippocrates cals a Joynt, lyes and ſtands againſt it; who is it that can but imagin any ſuch diſlocation? In like ſort it is never diſlocated inwardly, for on this part it hath the fleſh of a ſtrong muſcle, termed *Deltoides*, lying over it; beſides alſo the backe and *acromion* of the Blade, and laſtly, the anker-like or beake-like proceſſe, all which foure hinder this joynt from ſlipping inwards. Now Hippocrates ſaith, that he hath only ſeene one kinde of Diſlocation of this bone, to wit, that which is downe-wards or to the arme-pit: and certainly it is the moſt uſuall and frequent; wherefore we intend to handle it in the firſt place. When the ſhoulder is diſlocated down-wards into the Arme-pit, a depreſſed cavitie may bee perceived in the upper part of the joynt; the *acromion* of the Blade ſhewes more ſharpe and ſtanding forth than ordinarie, for that the head of the ſhoulder-bone is ſlipt downe, and hid under the arme-pit, cauſing a ſwelling forth in that place; the Elbow alſo caſts it ſelfe (as it were) outwards, and ſtands further off from the ribs; and though you force it, yet can you not make it to touch them; the Patient cannot lift up his hand to his eare on that ſide, neyther to his mouth, nor ſhoulder. Which ſigne is not peculiar to the luxated ſhoulder, but common to it, affected with a contuſion, fracture, inflammation, wound, abſceſſe, *ſcirrhus*, or any defluxion upon the nerves, ariſing out of the *vertebræ* of the neck, and ſent into the arme: alſo this arme is longer than the other. Laſtly (which alſo is common to each difference of a luxated ſhoulder) the Patient can move his arme by no kinde of motion without ſenſe of paine, by reaſon of the extended and preſſed muſcles, ſome alſo of their fibres being broken. There are ſixe wayes to reſtore the ſhoulder luxated down-wards into the arme-pit. The firſt is, when it is performed with ones fiſt, or a towell. The ſecond, with a clew of yarne, which put under the arme-pit, ſhall be thruſt up with ones heele. The third, with ones ſhoulder put under the Arme-hole, which maner, together with the firſt, is moſt fit for new and eaſily to be reſtored luxations, as in thoſe who have looſe fleſh, and effeminate perſons, as children, eunuches, and women. The fourth, with a ball put under the Arme-pit, and then the Arme caſt over a piece of wood held upon two mens ſhoulders, or two ſtanding poſts. The fifth, with a Ladder. The ſixth, with an Inſtrument, called an *Ambi*. Wee will deſcribe theſe ſixe waies, and preſent them to your view.

Chap. XXII.

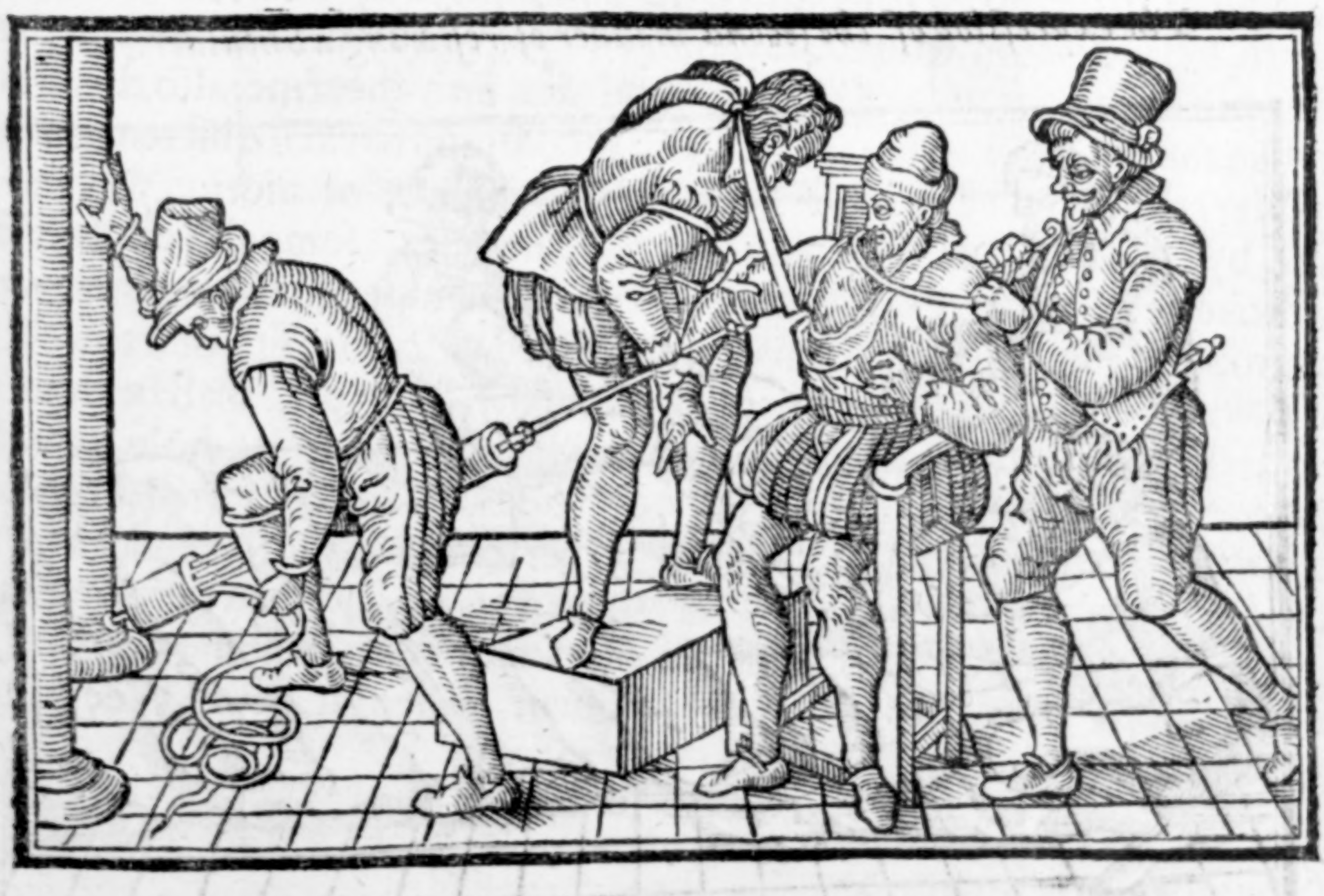
Of the firſt manner of ſetting a Shoulder, which is with ones fiſt.

FIrſt, let one of ſufficient ſtrength, placed on the oppoſite ſide, firmly hold the Patient upon the joynt of the Shoulder, leſt he move up and downe with his whole bodie, at the neceſſarie extenſion, working and putting it in: then let another, taking hold of his arme above the elbow, ſo draw and extend it downe-wards, that the head thereof may be ſet juſt againſt its cavitie, hollowed in the blade-bone. Then at laſt let the Surgeon lift and force up with his fiſt the head of the bone into its cavitie. Here this is chiefly to be obſerved, that in freſh luxations, eſpecially in a bodie ſoft, effeminate, moiſt, and not over corpulent, that it ſometimes comes to paſſe, that by the only meanes of juſt extenſion, the head of the bone, freed from the muſcles and other particles wherewith it was, as it were, intangled, will betake it ſelfe into its proper cavitie; the muſcles being by this meanes reſtored to their place and figure, and drawing the bone with them, as they draw themſelves towards their heads, as it were with a ſudden gird or twitch: wherefore in many, whileſt we thought no ſuch thing, it ſufficed for reſtitution only to have extended the arme. But if the Luxation bee inveterate, and the hand cannot ſerve, then muſt the Patients ſhoulder be faſtned to a Poſte with the forementioned Ligature, or elſe committed to ones charge, who may ſtand at his backe, and hold him faſt. Then the arme ſhall preſently be tyed about, a little above the elbow, with a fillet, whereto a cord ſhall be faſtened; which, being put or faſtened to the Pulley, ſhall be drawne or ſtretched forth, as much as need ſhall require. Laſtly the Surgeon, with a towell, or ſuch like Ligature, faſtened about his necke, and hanging down, and ſo put under the Patients arme-pit neare to the Luxation, ſhall, raiſing himſelfe upon his feete with the whole ſtrength of his necke, lift up the ſhoulder, and alſo at the ſame time bringing his arme to the Patients breaſt, ſhall ſet the head of the ſhoulder-bone, forced with both his hands into its cavitie, as you may ſee by this enſuing figure.

Gal. com. ad ſen. 23. ſect. 1. de art.

A perfect ſetting the luxated ſhoulder by extenſion only.

An expreſſion of the firſt manner of putting a Shoulder into Joynt.



Then muſt you cover all the adjacent parts with a medicine made *ex farina volatili, bolo armenio, myrtillis, pice, reſina & alumine,* beaten into powder, and mixed with the white of an egge. Then muſt the hollowneſſe under the arm be filled with a clew of Woollen or Cotton yarne, or a linnen cloth ſpred over with a little oyle of Roſes or Myrtles, a little vinegar, and *unguentum roſatum,* or *infrigidans Galeni,* leſt it ſticke to the haires, if there be any there. The part muſt afterwards be bound up with a ligature, conſiſting of two heads, of ſome five fingers breadth, and two ells long, more or leſſe, according as the bodie ſhall require. The midſt thereof ſhall be put immediately under the arme-pit, and then croſſed over the lame ſhoulder, and ſo croſſing it as much as ſhalbe fit, it ſhall be wrapped under the oppoſite arme. And laſtly, the arme ſhall be layd upon the breaſt, and put in a ſcarfe, in a middle figure almoſt to right angles, ſo that by lifting up the hand hee may almoſt touch his ſound ſhoulder, leſt the bone, newly ſet, may fall out againe; neyther ſhall the firſt dreſſing be ſtirred, untill foure or five daies be paſt, unleſſe the greatneſſe of ſome happening ſymptome divert us from this our purpoſe.

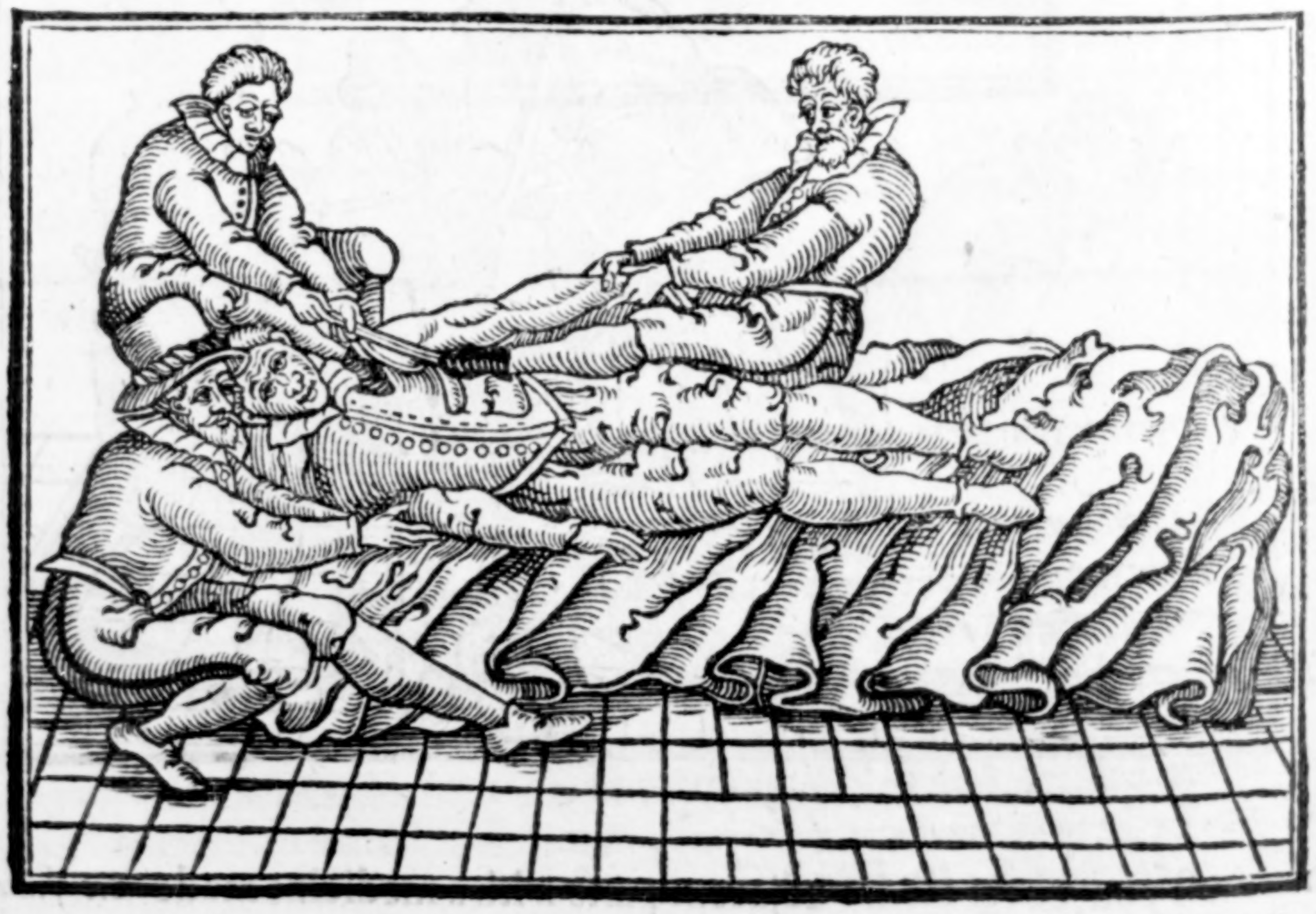
Chap. XXIII.

Of the ſecond manner of reſtoring a Shoulder, that is, with the heele; when as the Patient by reaſon of paine can neither ſit, nor ſtand.

Hipp. ſent. 12. ſect. 1. de art.

THe Patient muſt be layd with his backe on the ground upon a Cover-lid, or Mat, and a clew of yarne or leathern-ball, ſtuffed with tow or cotton, of ſuch bigneſſe as may ſerve to fill up the cavitie, muſt be put under his arm-pit, that ſo the bone may ſtraight-wayes the more eaſily be forced by the heele into its cavitie. Then let the Surgeon ſit beſide him, even over againſt the luxated ſhoulder; and if his right ſhoulder be luxated, he ſhall put his right heele to the ball, which filled up the arme-pit; but if the left, then the left heele: then let him forthwith draw towards him the Patients arme, taking hold thereof with both his hands, and at the ſame inſtant of time ſtrongly preſſe the arme-pit with his heele. Whilſt this is in doing, one ſhall ſtand at the Patients backe, who ſhall lift up his ſhoulder with a towell, or ſome ſuch thing fitted for that purpoſe, and alſo with his heele preſſe downe the top of the ſhoulder-blade: another alſo ſhall ſit on the other ſide of the Patient, who, holding him, ſhall hinder him from ſtirring this way or that way, at the neceſſary extenſion in ſetting it, as you may ſee it expreſt by the following figure.

The expreſſion of the ſecond manner of reſtoring a Shoulder.



Chap.

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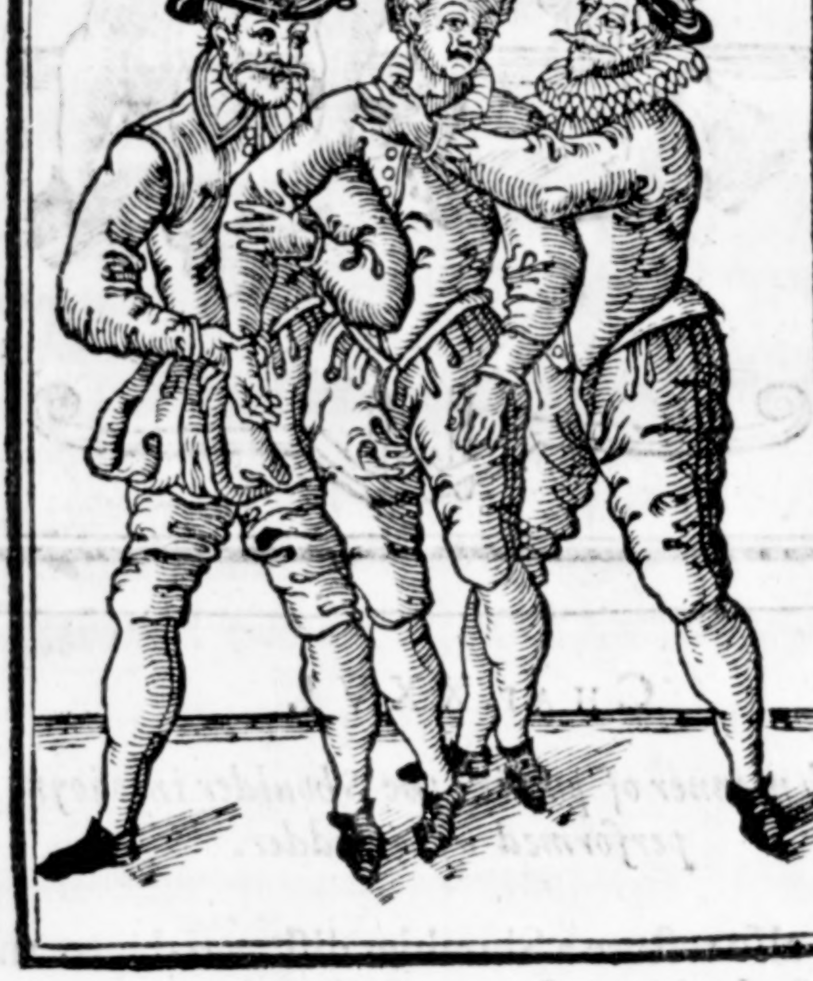
CHAP.

CHAP. XXIV.

Of the third manner of reſtoring a Shoulder.

Some one who is of a competent height and ſtrength ſhall put the ſharpe part of the toppe of his ſhoulder under the Patients arme-pit, and alſo at the ſame time ſhall ſomewhat violently draw his arme towards his owne breaſt, ſo that the Patients whole bodie may (as it were) hang thereby. In the meane time another, for the greater impreſſion, ſhall lay his weight on the luxated ſhoulder, ſhaking it with his whole bodie. Thus the ſhoulder, drawne downe-wards by the one which ſtands under the arme-hole, and moved and ſhaken by the other, who hangs upon it, may bee reſtored into its ſeat, by the helpe of the Surgeon concurring therewith, and with his hand governing theſe violent motions, as the following figure ſhews.

The figure of the third manner of putting a Shoulder into Joynt.

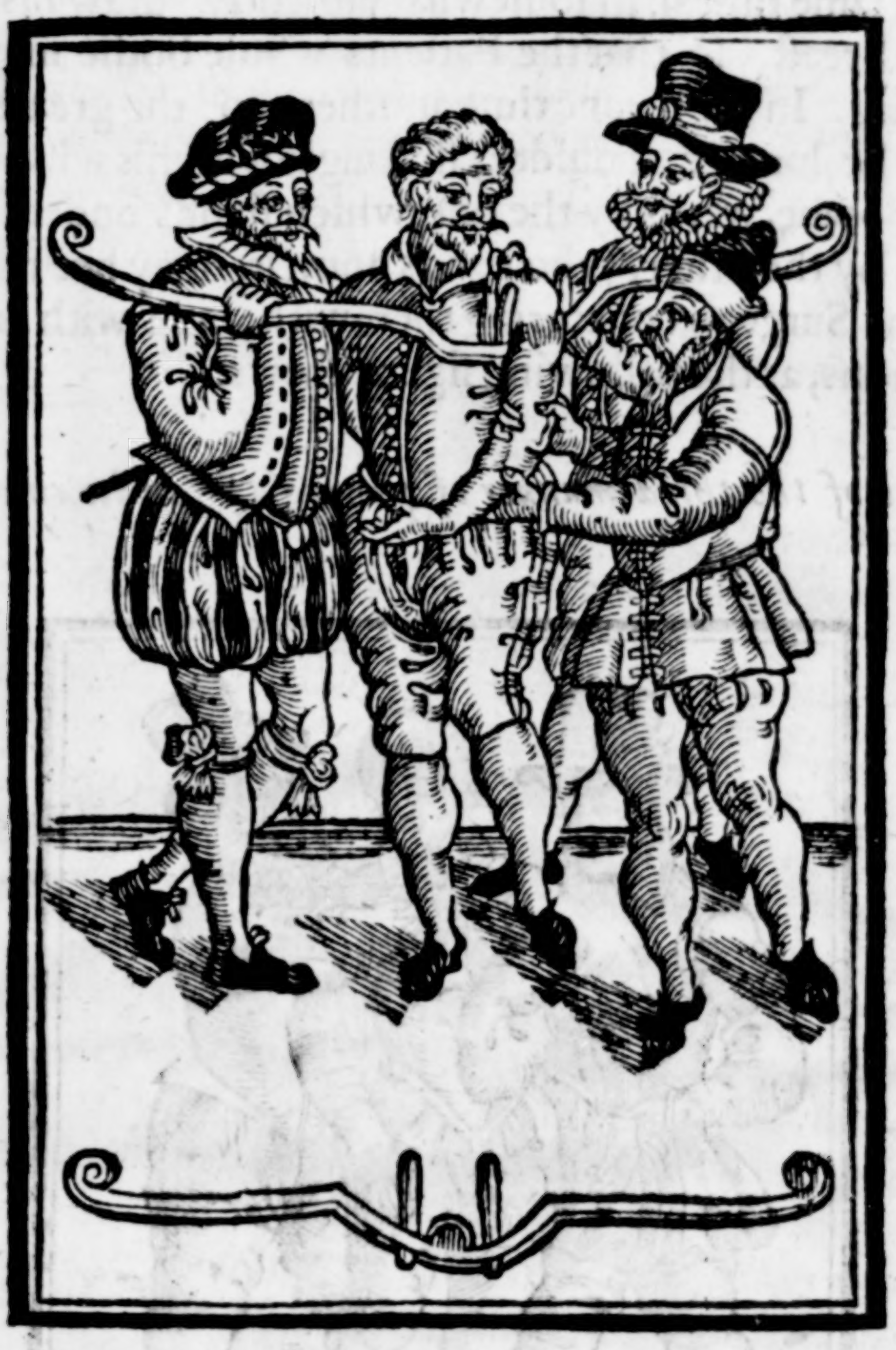


CHAP. XXV.

Of the fourth manner of reſtoring a diſlocated Shoulder.

You muſt take a perch, or piece of Wood (ſomewhat reſembling that which the Water-bearers of Paris uſe to put on their ſhoulders) ſome two inches broad, and ſome ſixe foote long; in the midſt hereof let there bee faſtened a clew of yarne, or ball of ſufficient bigneſſe to fill up the cavitie of the arme-hole. Let there be two pins put in, one on each ſide of the ball, each alike diſtant there-from, with which, as with ſtayes, the ſhoulder may be kept in, and upon the ball, that it ſlip not away from it. Let two ſtrong men, taller than the Patient, eyther by nature or art, put this perch upon their ſhoulders; then let the Patient put his arme-pit upon that place where the ball ſtands up; the Surgeon muſt be ready to pull his hanging arme downe-wards. Thus the Patient ſhall (as it were) hang on the perch with his ſhoulder, and ſo the head of the bone ſhall bee forced into its cavitie, as this enſuing Figure declares; wherein you may ſee the perch or yoake, with the two woodden pins and ball faſtened in the midſt, delineated by its ſelfe.

The figure of the fourth manner of reſtoring the Shoulder.



Chap. XXVI.

Of the fifth manner of putting the Shoulder into joynt, which is performed by a Ladder.

YOu may alſo reſtore a Shoulder diſlocated into the Arme-pit, by the helpe of a Ladder, after the following manner. Let ſome round body, as a ball, or clew of yarne, which (as we formerly ſaid) may ſerve to fill the Arme-pit, be faſtened upon one of the upper ſteps of a Ladder; at the foot of the Ladder ſet a low ſtoole, whereupon let the Patient mount; then binde both his legges, and alſo his ſound arme behind his back, leſt, when you are about your operation, he hinder and ſpoyle all you doe, by laying his hand, or ſetting his foote upon the Ladder. Then let his Arme be preſently put over the ſtep of the Ladder, and his Arme-pit put upon the there faſtened bal, the Patient in the meane while being wiſhed to come with his whole body as neare unto the ſteps of the Ladder as he is able; for otherwiſe, beſides that there is no other hope of reſtoring the Luxation, there would bee no ſmall danger of breaking the ſhoulder-bone. Alſo let him take heede, that he put not his head betweene the ſteps. Then his Arme, bound above the Elbow with filletting, or ſome other ligature fit for that purpoſe, ſhall be drawne downe by the hand of ſome that aſſiſt you, and at the ſame time let the ſtoole be plucked from under his feet, ſo that hee may hang upon the Ladder. Thus by this meanes the head of the Shoulder will bee reſtored by its ſelfe, the endeavour of the Surgeon aſſiſting, and preſſing downe the

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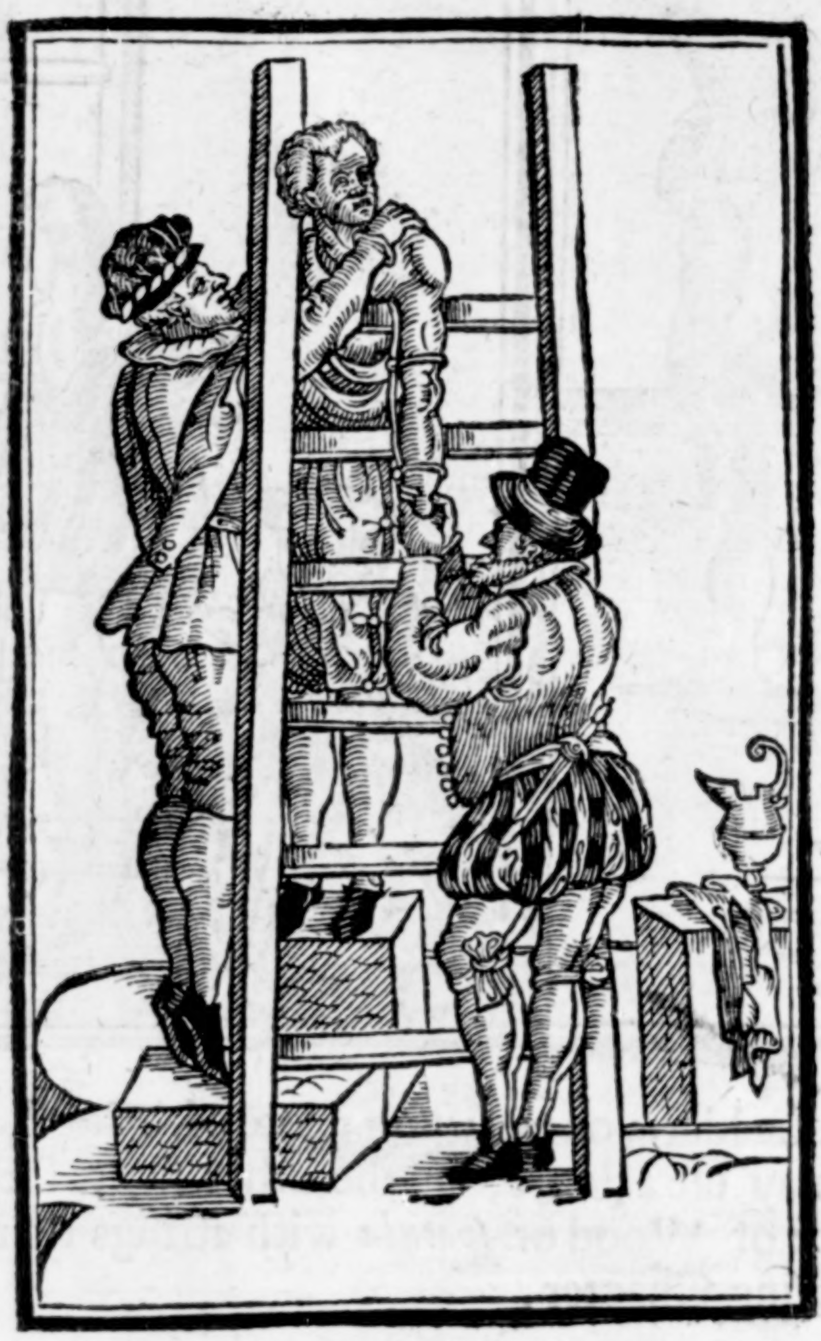
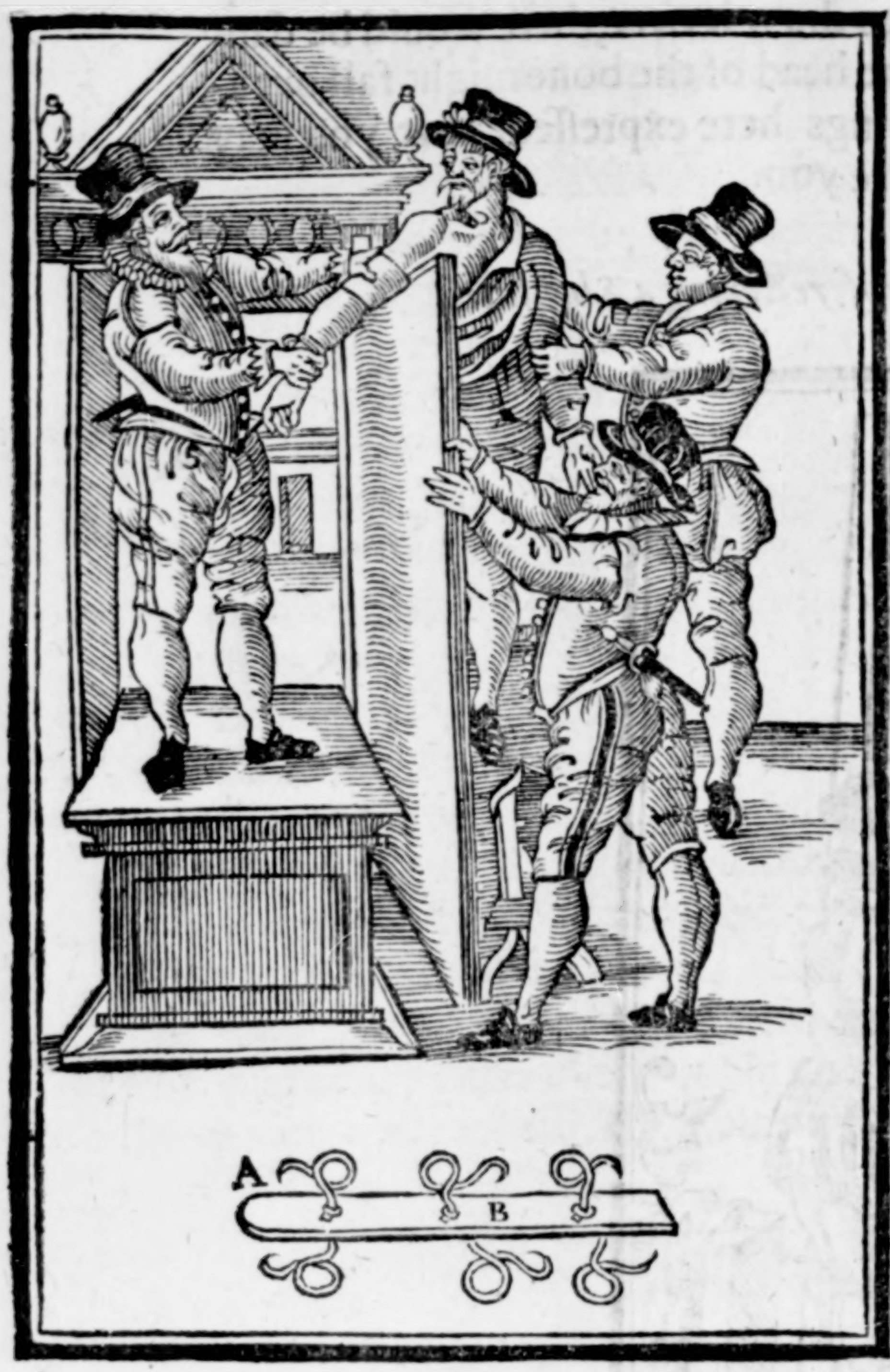
ſhoulder-blade, and moving it to and againe. The bone being ſet, the ſtoole, which a little before was plucked from under the Patients feet, ſhall be put there againe, that he may, with the more eaſe and leſſe paine, pull backe his Arme from the ſtep of the Ladder. For if he ſhould lift it high up to draw it over, there would be danger, leſt being newly ſet, and not well ſtayed, the head of the bone might fall out againe. I have thought good to have all theſe things here expreſſed, that you may learne this operation, as if you ſee it done before you.

The delineation of the fifth manner of reſtoring a Shoulder.

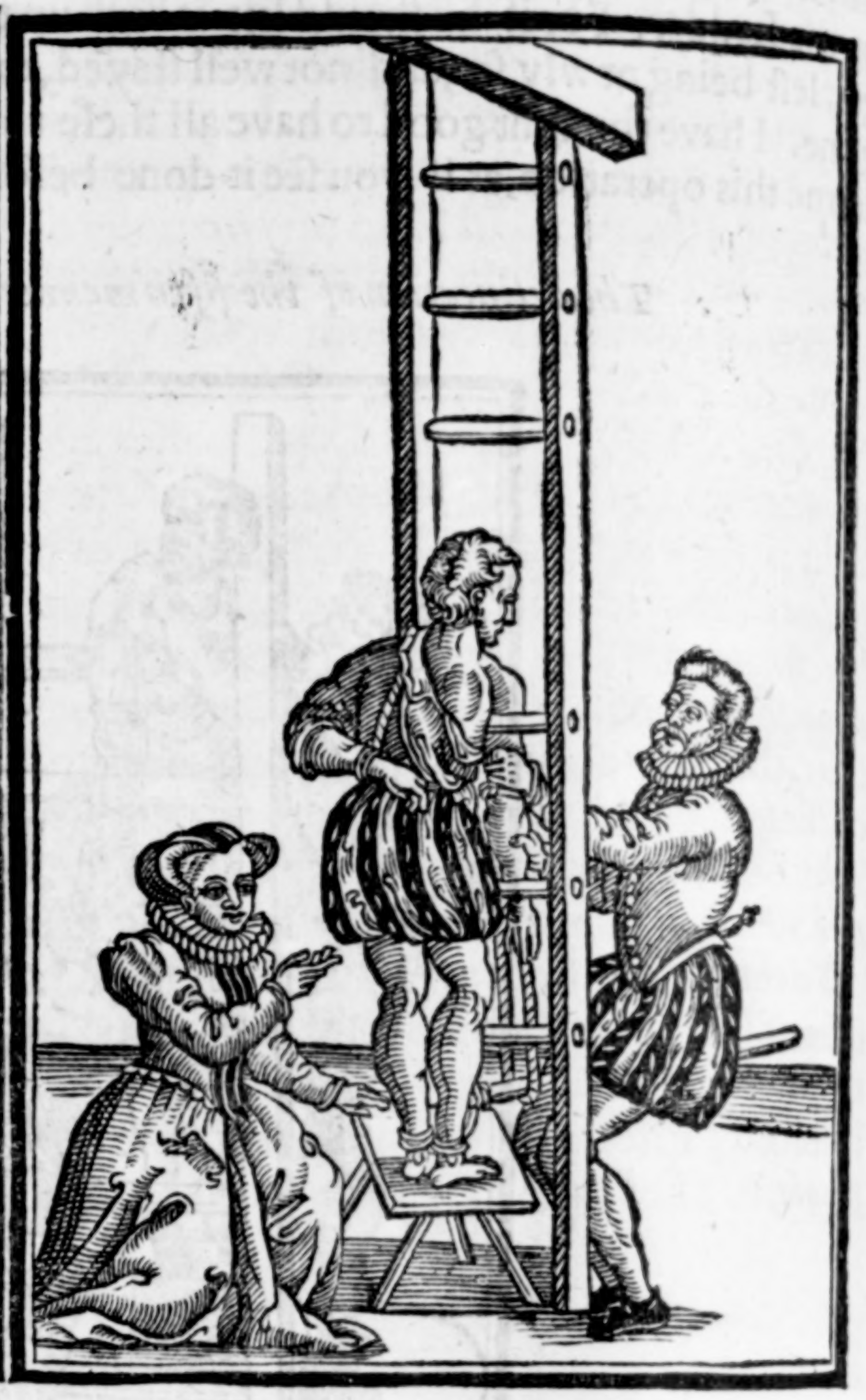


I have not thought fit in this place to omit the induſtrie of Nicholas Picart, the Duke of Guiſe his Surgeon; who being called to a certaine Countrey-man to ſet his Shoulder being out of joynt, and finding none in the place beſides the Patient and his wife, who might aſſiſt him in this worke, hee put the Patient, bound after the forementioned manner, to a Ladder; then immediately hee tyed a ſtaffe at the lower end of the Ligature, which was faſtened about the Patients arme above his Elbow; then put it ſo tyed under one of the ſteps of the Ladder, as low as he could, and got aſtride thereupon, and ſate thereon with his whole weight, and at the ſame inſtant made his wife to plucke the ſtoole from under his feet: which being done, the bone preſently came into its place, as you may ſee by the following figure.

Another figure expreſsing the fourth manner of reſtoring a diſlocated Shoulder.



Another figure to the ſame purpoſe.



If you have never a Ladder, you may uſe a peece of Wood, layd a-croſſe upon two Poſts. Alſo you may uſe a doore, as the other figure ſhewes, wherein you muſt obſerve a flat piece of Wood or *ſpatula* with ſtrings thereat, whoſe uſe ſhal be ſhowne in the following Chapter.

Chap. XXVII.

The ſixth manner of reſtoring a Shoulder, luxated into the Arme-pit.

Sect.1. lib.1. de artic. ſent.19.

The deſcription of the *Gloſſocomium* termed *Ambi.*

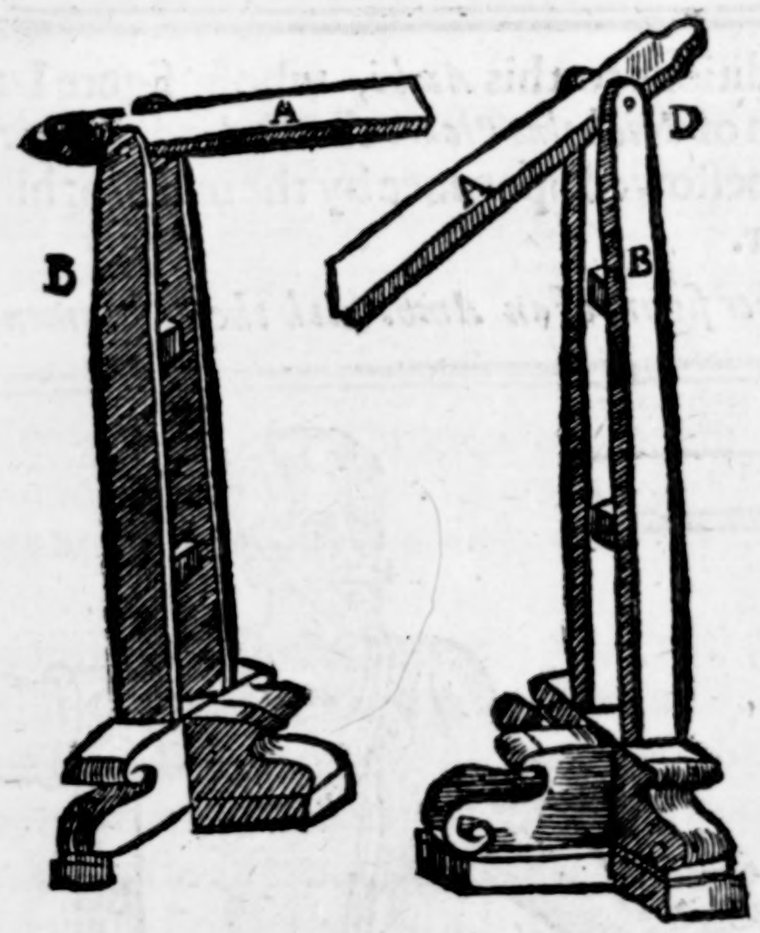
HIppocrates writes, that this is the beſt way of all to reſtore a diſlocated Shoulder. You muſt take a woodden *ſpatula* of ſome foure or five fingers breadth, and ſome two fingers thickneſſe or leſſe, but ſome yard or thereupon long; the one end thereof muſt bee narrow and thin, with a round head ſtanding up and lightly hollowed, that put under the Arme-pit, it may receive part of the head of the ſhoulder-bone, the which for that purpoſe muſt not bend towards the ribs, but to the top of the Shoulder. This upper part of the *ſpatula* muſt bee wrapped about with a linnen or woollen ragge, or ſome ſuch ſoft thing, that it may be the ſofter, and hurt the leſſe; and then it muſt be ſo thruſt under the Arme-pit, that it may throughly penetrate into the inner part betweene the ribs, and the head of the Shoulder-bone. There muſt, beſides in this *ſpatula*, be two holes in three ſeverall places, each alike diſtant from other, through which let ſoft ſtrings be put, whereby it may be tyed to the arme, ſtretched all the length thereof even to the fingers, in one place a little below the head of the ſhoulder-bone, in another a little above the elbow, and the third at the wreſt, that ſo they may hold it firme. Therefore let the diſtances of the holes bee fitted to this purpoſe; but principally you muſt have a care of this, that the upper part of the *ſpatula* reaching beyond the head of the arme, enter even to the innermoſt Cavity of the arme-pit; then, a croſſe pin or piece of wood muſt be made faſt through two poſtes or a frame, & well faſtened thereto, and therupon the Arme with the *ſpatula* muſt be ſo put over, that the pin may be under the arme-pit, the body weighing one way, and the arme another: which being done, the arme muſt be drawn down one way, and the body another about the pin. Now this croſſe pin muſt bee put on ſuch a height that the patient may ſtand on tipp-toes. Now this is the very beſt way of reſtoring a ſhoulder. In ſtead of two poſts or a frame, you may make ſhift with a ladder, doore, beds poſtes, and ſuch like things as ſhall bee there preſent. I have heard *Henry Arvet*, a very good ſurgeon of *Orleans* ſay, that he never attempted this manner of putting into joint a ſhoulder diſlocated into the arme-pit without good ſucceſſe, unleſſe by chance (which alſo is noted by *Hippocrates*) that the fleſh is growne into the cavity, and the head of the bone hath made it ſelfe another cavity in the place whereinto it is fallen; for in this caſe the bone will either not bee reſtored, or elſe not remaine in its place, but fall backe notwithſtanding into the new hollowed cavity, which ſerves it in ſtead of its naturall ſocket or cavity. But I muſt here admoniſh young Surgeons, that if the bone be not reſtored at the firſt endeavour and onſet, that they doe not deſpaire and preſently deſiſt from their entended operation, but they muſt winde about, and gently move the joint: for ſo at the length it will bee more eaſily moved, and enter into the naturall cavity. When it is in, it muſt bee bound up with compreſſes and rowlers after the forementioned manner.

Sect.1. de art. ſent. 21.

To the former figures I have thought good to adde this, which expreſſeth the maner of reſtoring a ſhoulder luxated into the arme-pit with a *ſpatula*, after the manner of *Hippocrates*. This *ſpatula* faſtened with an iron pin to the ſtanding frame may be turned, lifted up, and preſſed downe at your pleaſure. A. ſhewes the wooden *ſpatula*. B. The frame or ſtanding poſtes.

Hip. ſent. 6
4 de artic.

Hippocrates his Gloſſocomium termed Ambi.

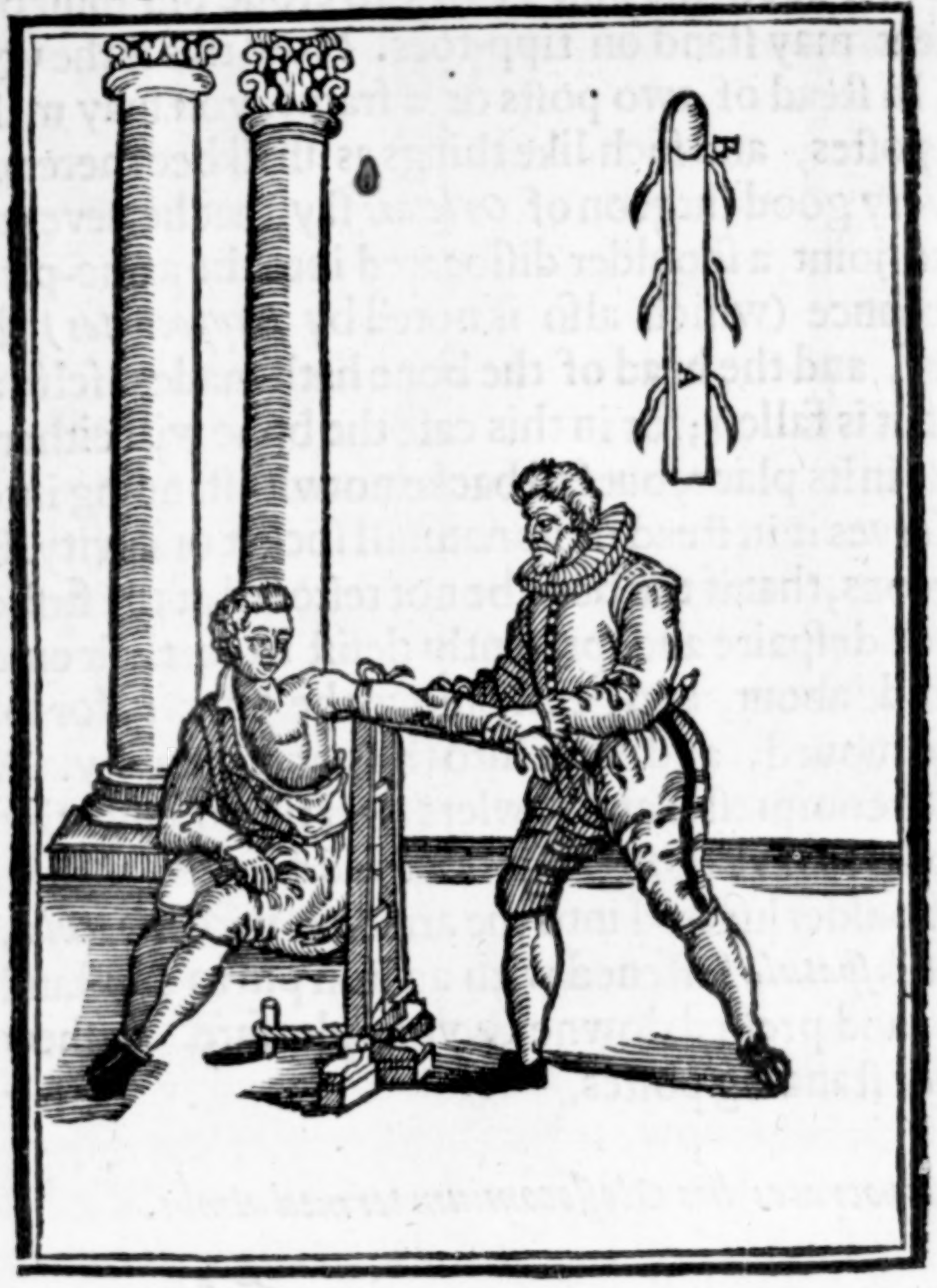


For the more certaine uſe of this inſtrument the patient muſt ſit upon a ſeate which muſt be ſomewhat lower than the ſtanding frame, that ſo the *ſpatula* which is thruſt into the arme-pit may be the more forcibly depreſt, ſo to force in the head of the ſhoulder-bone; the patients feete muſt alſo be tyed, that hee may not raiſe himſelfe up whileſt the Surgeon endevours to reſtore it. Now he ſhall then endevour to reſtore it, when he ſhall have bound the ſtretched forth arme of the diſlocated ſhoulder unto the *ſpatula*, & thruſt the one end therof under the ſlipped forth head of the ſhoulder bone, as wee have formerly ſhewed; for then by preſſing downe the other end of the *ſpatula* which goes to the hand, the bone is forced into its cavity. You muſt diligently obſerve the wooden *ſpatula*, which therefore I have cauſed to be expreſ-

How to make uſe of the *Ambi*.

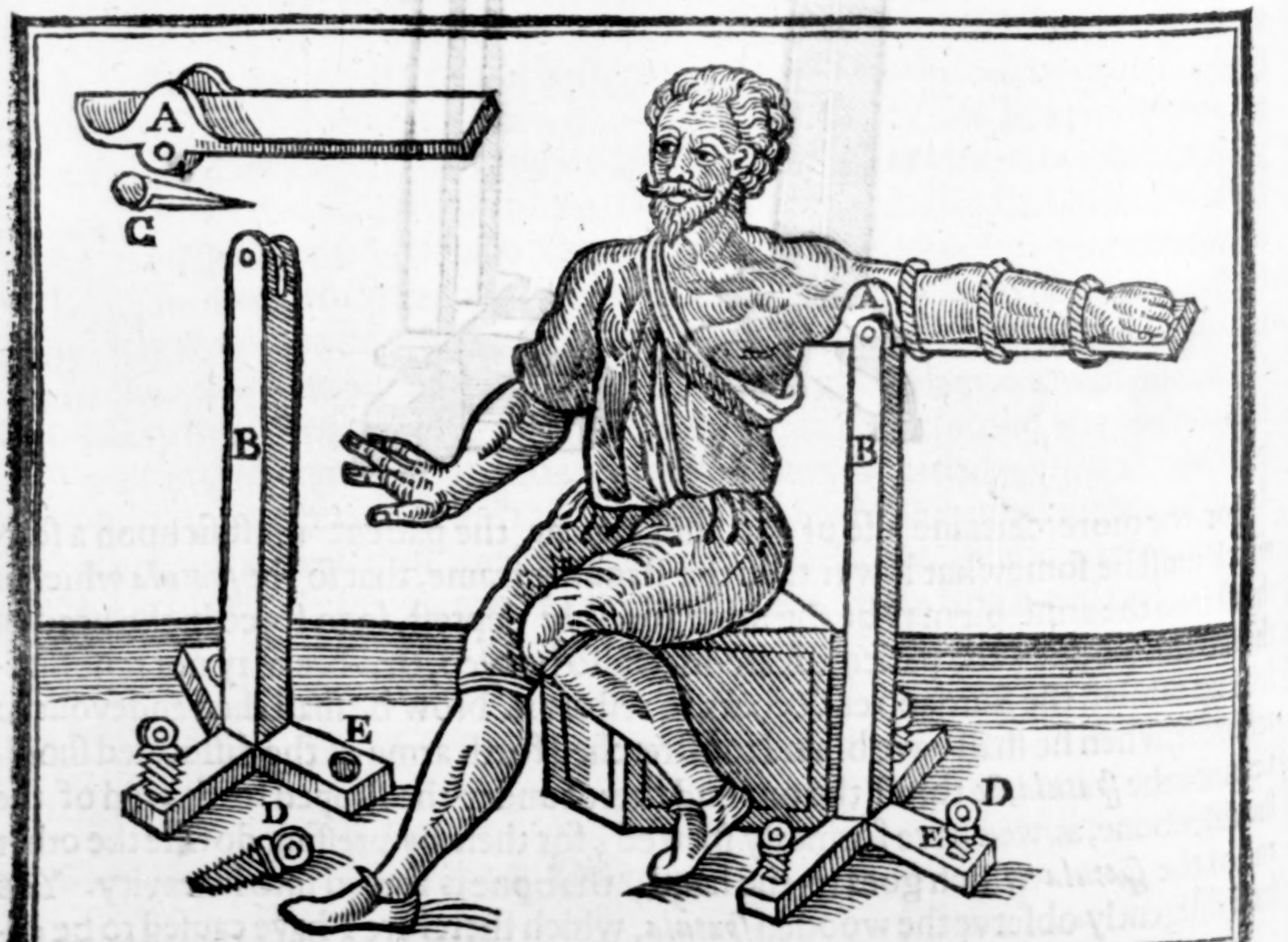
preſſed by it ſelfe, which *Hippocrates* calleth *Ambi*, whoſe head is a little hollowed where it is noted with this letter B. The whole *ſpatula* is marked with this letter A. with three ſtrings hanging thereat, provided for the binding of the arme, that it may be kept ſteddy, as you may perceive by the enſuing figure.

The figure of an Ambi fitted to a diſlocated ſhoulder.



There are other additions to this *Ambi*, whoſe figure I now exhibited to your view, by the invention of *Nicholas Picart* the Duke of *Lorrain's* Surgion, the uſe and knowledge whereof, beſtowed upon mee by the inventor himſelfe, I would not envie the ſtudious reader.

Another figure of an Ambi with the additaments.



AA. Shew the two eares, as it were, ſtops made to hold and keep in the top of the ſhoulder, leſt it ſhould ſlippe out when it is put into the frame or ſupporter.
BB. The frame or ſupporter whereon the *Ambi* reſts.
CC. The pin or axeltree which faſtens the *Ambi* to the ſupporter.
DD. Screw-pinnes to faſten the foote of the ſupporter that it ſtirre not in the operation.
EE. The holes in the foote of the ſupporter, whereby you may faſten the ſcrew-pins to the floore.

CHAP. XXVIII.

How to reſtore a ſhoulder diſlocated forewards.

IT is ſeldome that the ſhoulder is luxated towards the foreſide; yet there is nothing ſo ſtable and firme in our bodies which may not be violated by a violent aſſault; ſo that thoſe bones doe alſo fall out of joint, whoſe articulations are ſtrengthened for the firmer connexion with fleſhly, nervous, griſtly and bony ſtayes or barres. This you may perceive by this kinde of diſlocated ſhoulder, ſtrengthened as it were with a ſtrong wall on every hand; to wit, the *Acromium* and the end of the collar bone, ſeeming to hinder it, as alſo the great and ſtrong muſcles, *Epomis* and *Biceps*. *Hippocrates*, ſhut up within the ſtrait bounds of the leſſer *Aſia*, never ſaw this kinde of diſlocation, which was obſerved five times by *Galen*. I profeſſe I have ſeene it but once, and that was in a certaine Nun, which weary of the Nunnery, caſt her ſelfe downe out of a window, and bore the fall and weight of her body upon her elbow, ſo that her ſhoulder was diſlocated forewards. *Com. ad ſen. 2 & 23. ſect. 1 de articulis.*

This kinde of diſlocation is knowne by the depravation of the conformation or figure of the member, by the head of the ſhoulder wreſted out towards the breaſt, as alſo the patient cannot bend his elbow. Signes. It is reſtored by the ſame meanes as other luxations of other parts, to wit, by ſtrait holding, extending, and forcing in. Cure. Therefore the patient muſt bee placed upon the ground with his face upwards, and then you muſt extend the ſhoulder otherwiſe than you doe when it is luxated into the arme-pit. For when it falleth into the arme-hole, it is firſt drawne forewards, then forced upwards, untill it bee brought juſt againſt the cavity whereinto it muſt enter. But in this kinde of luxation, becauſe the toppe of the ſhoulder is in the fore parts of the dearticulation ſhut up with muſcles, opened both to the outer, as alſo to the inner part, you muſt worke to the contrary; to wit, to the hinde part. But firſt of all you muſt place a ſervant at the backe of the patient, who may draw backe a ſtronge and broade Bandage caſt about the arme-pit (ſuch as is the *Carcheſius*, which conſiſts of two contrary and continued ſtrings) leſt that when the arme ſhall be extended, the ſhoulder follow: alſo you muſt put a clew of yarne to fill up the armepit. *Sent. 23. ſect. 1. de art.* Then muſt you extend the arme, caſting another ligature a little above the elbow, and in the interim have a care that the head thereof fall not into the arme-pit, which may be done both by putting the forementioned clew under the arme, and drawing the head another way; then muſt you permit, by ſlacking your extenſion, the joint freed from the encompaſſing muſcles, to be drawne and forced into its cavity, by the muſcles forcible recoiling, as with an unanimous conſent, into themſelves and their originals, for thus it will eaſily bee reſtored, and ſuch extenſion onely is ſufficient thereto.

CHAP. XXIX.

Of the ſhoulder luxated outwardly.

Signes.

The cure.

What to bee done to hold in the ſhoulder after it is reſtored.

THe diſlocation alſo of the ſhoulder to the outward parts ſeldom happens; but yet, if it may at any time happen, the extenſion of the arme will bee very difficult, but yet more difficult towards the outward part than towards the inward; there is a depreſſed cavity perceived towards the cheſt; but externally a bunching forth, to wit, in that part from whence the head of the ſhoulder-bone is fled. For the reſtoring hereof, the patient muſt bee laid flat on his belly, and the elbow muſt be forcibly drawne contrary to that whereto it is fled, to wit, inwardly to the breſt; and alſo the ſtanding forth head of the arme-bone, muſt bee forced into its cavity, for thus it ſhall bee eaſily reſtored. But into what part ſoever the ſhoulder-bone is diſlocated, the arme muſt be extended and drawne directly downewards. After the reſtitution fitting medicines ſhall be put about the joint. Let there bee ſomewhat put into the arme-pit which may fill it up, and let compreſſes or boulſters bee applyed to that part to which the luxated bone fell; then all theſe things ſhall be ſtrengthened and held faſt with a ſtrong and broad two headed ligature put under the armepit, and ſo brought acroſſe upon the joint of the ſhoulder, and thence carried unto the oppoſite arme-pit by ſo many windings as ſhall be judged requiſite. Then the arme muſt be put and carried in a ſcarfe to right angles, which figure muſt be obſerved not onely in every luxation of the ſhoulder, but in each fracture of the arme alſo, for that it is leſſe painefull, and conſequently, ſuch as the arme may ſtand the longeſt therein without moving.

CHAP. XXX.

Of the ſhoulder diſlocated upwards.

Signes.

Cure.

THe head of the ſhoulder alſo may ſometimes bee luxated into the upper part. Which when it happens, it ſhewes it ſelfe by bunching forth at the end of the Collar bone, the hollownes of the arme-pit is found larger than uſuall, the elbow flyes further from the ribs than when it fell downewards, now the arme is wholly unable to performe the uſuall actions. It is fit for the reſtitution of ſuch a luxation, that the Surgeon ſtoope downe, and put his ſhoulder under the patients arme, and then ſtand up as high as he can upon his feete, and therewithall preſſe downe the head of the ſhoulder-bone into the cavity, or elſe make ſome other to doe it. Otherwiſe it is fit to lay the Patient upon his backe on the ground, and whileſt ſome one extends the affected arme by drawing it downewards, the Surgeon with his owne hand may force downe the head of the bone into its cavity. The operation performed, the ſame things ſhall bee done as in other luxations, compreſſes being applyed to that part whereto the bone flew, and it being alſo bound up with ligatures. Now you may underſtand in theſe foure forementioned kindes of diſlocations, that the bone which was luxated is reſtored, by the ſound which ſhall bee heard as you force it in, by the reſtitution of the accuſtomed actions, which are perceived by the bending, extending, and lifting it up, by the mitigation of the paine, and laſtly by the collation and comparing of the affected arme with the ſound, and by its ſimilitude and equality therewith.

CHAP.

Chap. XXXI.

Of the diſlocation of the Elbow.

THe Elbow may alſo be foure manner of wayes diſlocated, to wit, inwardly, outwardly, upwards and downewards. By the part which is inwards, I meane that which lookes towards the center of the body, when as the arme is placed in a naturall ſite, to wit, in a middle figure betweene prone and ſupine; I make the outward part, that which is contrary thereto. By the upper part I meane that which is towards the heaven, and by the lower that which is next to the earth: and by how much the joint of the elbow conſiſts of more heads and cavities, than that of the ſhoulder, by ſo much when it is luxated it is the more difficultly ſet, and it is alſo more ſubject to inflammation, and to grow hard thereupon, as *Hippocrates* ſaith. Now the joint of the elbow is more difficultly diſlocated than that of the ſhoulder, and more hardly ſet, for that the bones of the cubit and arme doe receive and enter each other by that manner of articulation which is termed *Ginglymus*, as wee have formerly more at large treated in our Anatomy, and a little before in our treatiſe of fractures. The Elbow is therefore diſlocated, for that the proceſſes thereof are not turned about the ſhoulder-bone in a full orbe, and by an abſolute turning. Wherefore if at any time the cubit be bended more ſtraitly and cloſely than that the inner proceſſe can retaine its place and ſtation in the bottom of its *ſinus*, the hinde proceſſe falleth out and is diſlocated backwards. But when as the foreproceſſe is extended more violently, and forced againſt the bottom of its cavity, it flyes and departs out of its place as beaten or forced thence, and this kinde of luxation is farre more difficultly reſtored than the former: adde hereunto that the utter extremitie of the cubite, which is called *Olecranum*, is the higher, but the other inner is the lower; whence it is that every one can better and more eaſily bend than extend their cubits. Therfore ſuch a diſlocation is cauſed by a more violent force, than that which is made to the inner ſide. The ſigne of this luxation is, the arme remaines extended, neither can it be bended, for the inner proceſſe ſtayes in the externall cavity, which is hollowed in the bottom of the ſhoulder-bone, which formerly was poſſeſſed by the inner part of the *Olecranum*; which thing makes the reſtitution difficult, for that this proceſſe is kept, as it were, impriſoned there. But when it falleth out diſlocated to the fore part, the arme is crooked, neither is it extended, and it is alſo ſhorter than the other. But if the elbow bee fallen out of its place according to the other manner of diſlocations, to wit, upwards or downewards, the naturall figure thereof is perverted, for the arme is ſtretched forth, but little notwithſtanding bended towards that part from whence the bone went, that is, figured after a middle manner betweene bending and extending thereof. What kinde ſoever of diſlocation ſhall befall it, the action of the Elbow will either not bee at all, or certainely not well untill that it be reſtored to its former place; there is a ſwelling in the part wherinto iu it flowne, and a cavity there from whence it is fled, which alſo happens in the diſlocations of all other parts. Furthermore, one diſlocation of the Elbow is compleat and perfect, another imperfect. The latter as it eaſily happens, and through a ſmall occaſion, ſo it is eaſily reſtored; but on the contrary a perfect, as it hardly happens, and not unleſſe with great violence, ſo it is not ſo eaſily reſtored againe, eſpecially if that you doe not prevent inflammation, for being inflamed it makes the reſtitution either difficult, or wholly impoſſible, principally that which falleth outwards.

The Author ſeems not to agree with *Hipp. Sent. ult. Sect.* 3. *fract.* and *Celſus* in the ſetting down the kinds of a diſlocated Elbow.

The Author doth not agree with *Hippocrates* and *Celſus*, in ſetting downe the notes of theſe diſlocations: for thoſe notes which are here attributed to an outward and inward luxation, theſe *Celſus* hath given to an elbow diſlocated towards the fore and out part; and thoſe which are here attributed to the elbow diſlocated upwards & downwards; thoſe *Celſus* hath attributed to a diſlocation to the out and in ſides.

Inflamation hinders repoſition.

Chap. XXXII.

How to reſtore the Elbow, diſlocated outwardly.

YOu may know that the elbow is diſlocated outwardly, if at any time you ſhall obſerve the arme to be diſtended, and not able to be bended. Wherefore you muſt forthwith undertake the reſtitution thereof, for feare of defluxion and inflammation, which the bitterneſſe of pain uſually cauſeth, upon what part ſoever the luxation happen. There is one manner of reſtoring it,

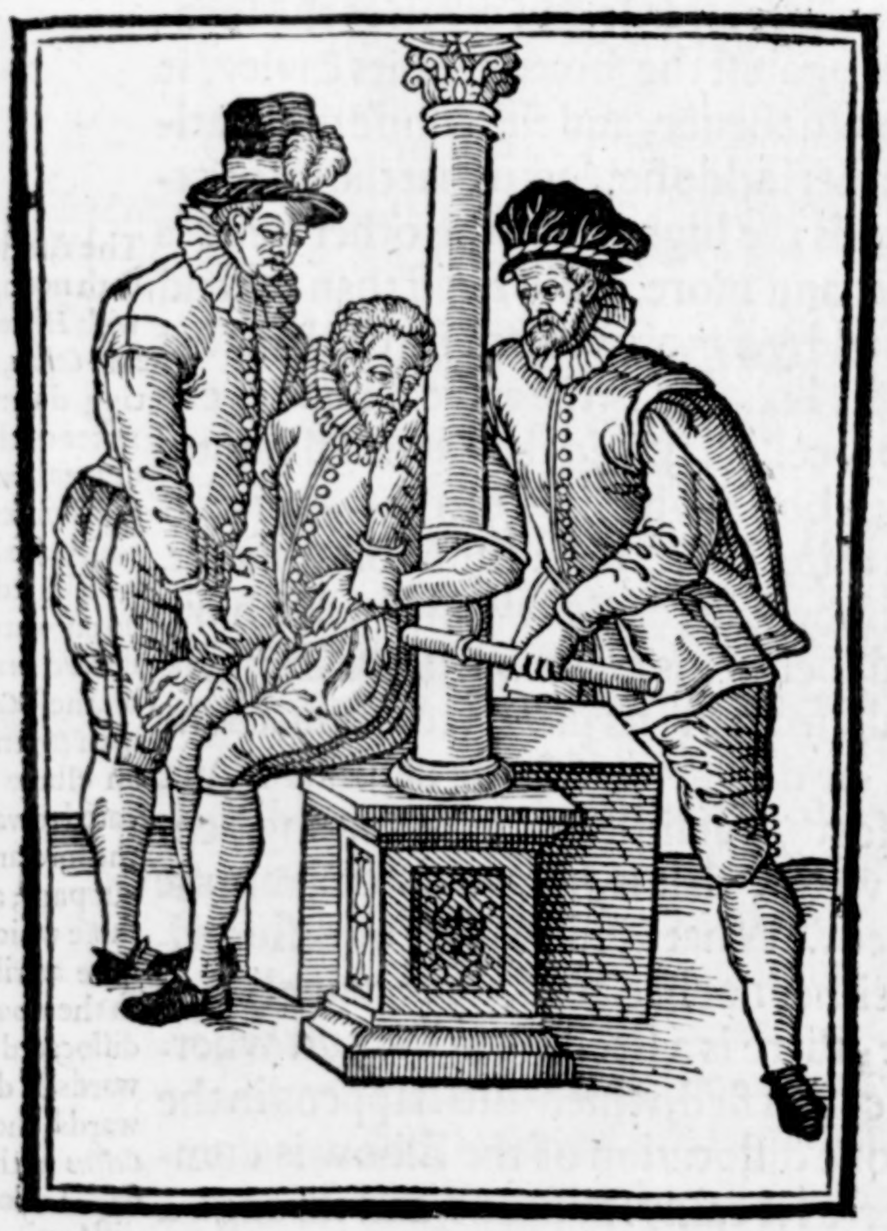
Signe.

Cure.

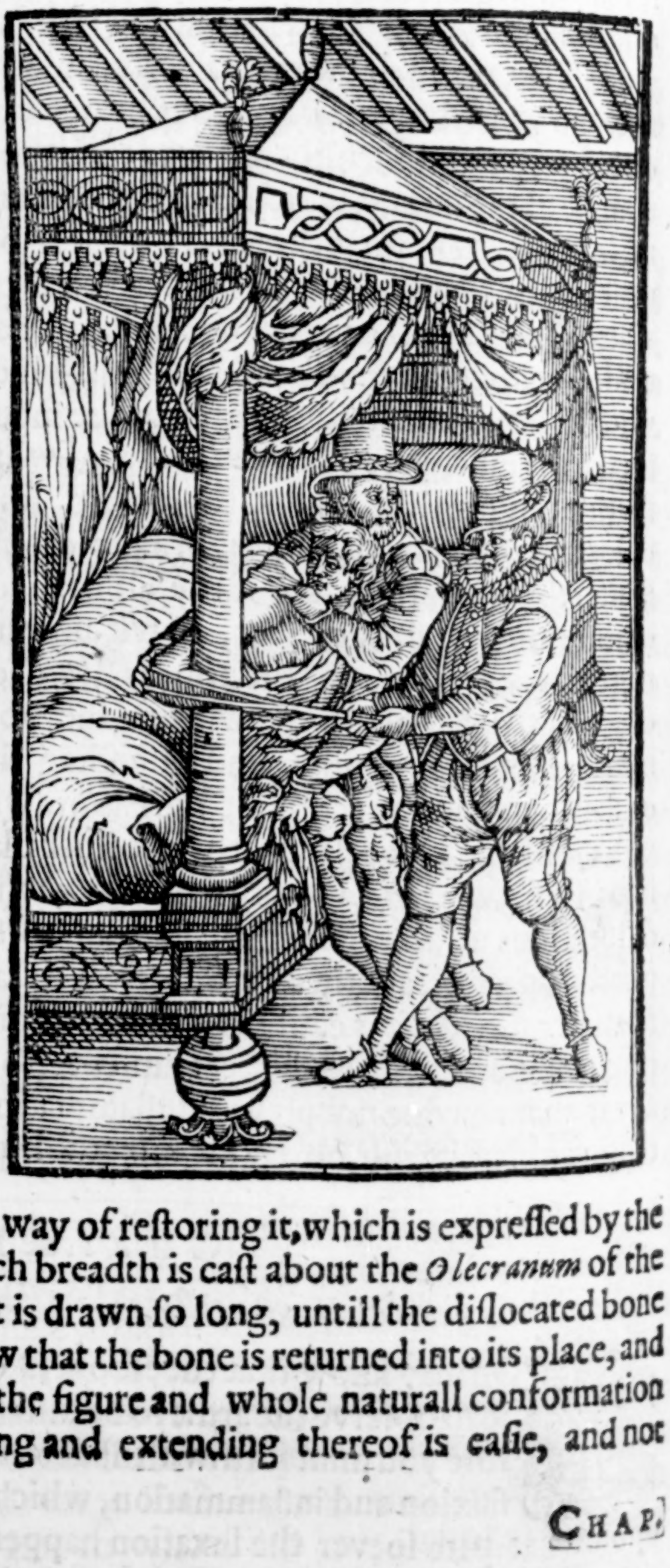
which is, you muſt cauſe one to hold hard and ſteddy the patients arme a little under the joint of the ſhoulder, and in the meane while let the Surgeon draw the arme, taking hold thereof with his hand, and alſo force the ſhoulder-bone outwards, and the eminency of the cubit inwards, but let him by little and little draw and extend the arme, wreſting it gently this way and that way, that he may bring back the bone which fell out into its cavity. I have thus expreſſely delivered this, that the young Surgeon may underſtand, that the arme muſt not be bended for the reſtoring of this kinde of diſlocation; for reſtitution cannot ſo be hoped for, becauſe by this kind of luxation the inner proceſſe of the cubit poſſeſſeth the place of the exteriour proceſſe in the cavity of the ſhoulder-bone. Wherefore, whileſt the arme is bended or crooked, the cubit is onely lifted up, and not drawne into its ſeat. But if wee cannot attaine to the reſtitution thereof with our hands alone, you muſt cauſe the diſlocated arme lightly bended to embrace a poſte, then muſt the end of the cubit called *Olecranum* be tyed or bound about with a ſtrong ligature or line, and then wreſted into its cavity by putting a battoon or ſtaffe into the ligature, as is demonſtrated by this enſuing figure.

A Caution.

A figure which ſhewes the way how to reſtore the Elbow, by putting it about a poſte, with a battoone.



A figure which ſhewes how to reſtore the elbow by only caſting a line about it.



There is alſo another more exquiſite way of reſtoring it, which is expreſſed by the latter figure, wherein a line of ſome inch breadth is caſt about the *Olecranum* of the arme, embracing a poſte or pillar, and it is drawn ſo long, untill the diſlocated bone be brought into its ſeat. Now wee know that the bone is returned into its place, and reſtored, when the paine ceaſeth, and the figure and whole naturall conformation is reſtored to the arme, and the bending and extending thereof is eaſie, and not painefull.

CHAP.

CHAP. XXXIII.

Of the diſlocation of the Elbow to the inſide, and of a compleat and uncompleat luxation.

The cure.

IF the Elbow be diſlocated to the inner part, the arme muſt be ſtrongly and powerfully extended, then bended quickly and with ſudden violence, ſo that his hand may ſmite upon his ſhoulder. Some put ſome round thing into the bought of the Elbow, and upon that doe ſuddenly force the Elbow to the ſhoulder, as we have formerly ſaid. If the Cubit bone be onely lightly moved out of its place into the upper or lower place, it is eaſily reſtored by drawing and forcing it into its cavity, after this following manner. Let two extend the arme, taking holde thereof at the ſhoulder and wreſt, and each draw towards himſelfe; and alſo the Surgeon (who ſhall there be preſent) ſhall force the bone which is diſlocated from that part whereunto it is bended, unto the contrary: after he ſhall thus have reſtored it, he ſhall lay the arme in a ſtraight angle, and ſo binde it up, and apply fit medicines formerly mentioned, and ſo let him carry it in a ſcarfe put about his necke, as wee ſaid in the diſlocation of the ſhoulder. *Hippocrates* bids, that the patient, after it is ſet, ſhall often endeavour to bend his hand upwards and downewards, and alſo extend and bend his arme, yea, and alſo to attempt to lift up ſome heavie thing with his hand; for ſo it will come to paſſe, that the ligaments of this joynt may become more ſofte, ready, and able to performe their accuſtomed functions, and alſo the bones of the cubite and ſhoulder ſhall bee freed from the affect termed *Ancyloſis*, whereto they are incident by the luxations of this part. Now *Ancyloſis* is a certaine preternaturall agglutination, co-agmentation, and as it were union of ſundry and ſeverall bones in the ſame joynt, which afterwards hinders the bending and extenſion thereof. Now, a *Callus* is generated in the Elbow ſooner than in any other articulation, whether it remaineth out, or be put into joynt, by reaſon that by reſt and ceſſation from the accuſtomed actions, a viſcide humor which is placed naturally in the joynts, as alſo another which is preternaturall, drawne thither by paine, floweth downe, and is hardned, and gleweth the bones together, as I have obſerved in many, by reaſon of the Idleneſſe and too long reſt of this part. Wherefore, that we may withſtand this affect, the whole ligation muſt be looſed ſooner and oftner than otherwiſe, that is to ſay, every third day, and then the patients arme muſt bee gently moved every way. Within the ſpace of twenty, or twenty five dayes, theſe reſtored bones recover their ſtrength, ſooner or later, according to the happening accidents. It is neceſſary alſo that the Surgeon know that the *Radius* or Wand ſometimes falleth out when the cubite or Ell is wholly diſlocated; wherefore hee muſt bee mindfull in ſetting the cubit, that hee alſo reſtore the Wand to its place; in the upper part it hath a round proceſſe lightly hollowed, wherein it receiveth the ſhoulder-bone: it hath alſo an eminencie which admitteth the two-headed muſcle.

Sent.63.ſect.3. de fract.

Why the elbow is moſt ſubject to *Ancyloſis.*

CHAP. XXXIV.

Of the diſlocation of the Styliformis or bodkin-like proceſſe of the cubit or ell.

Differences and cauſes.

Cure.

THe proceſſe of the Ell called *Styloides*, being articulated to the wreſt by *Diathroſis*, by which it is received in a ſmall cavity, is diſlocated, and falleth out ſometimes inwards, ſomewhiles outwards. The cauſe uſually is the falling of the body from high upon the hands. It is reſtored, if that you force it into its ſeat, diligently bind it, & apply thereto very aſtringent & drying medicines. But yet, though you ſhall diligently performe all things which may bee done in diſlocations, yet you ſhall never ſo bring it to paſſe that this bone ſhall bee perfectly reſtored, and abſolutely put into the place where hence it went: which

Sent. 1. ſect. 2. & ſent. ult. ſect. 3. de fract.

thing we have read, obſerved by *Hippocrates*; when (ſaith he) the greater bone, to wit the Ell, is removed from the other, that is the wand, it is not eaſily reſtored to its owne nature againe; for that, ſeeing that neither any other common connexion of two bones, which they call *Symphyſis* or union, when it is drawne aſunder and deſtroyed, may bee reduced into its former nature, by reaſon theſe ligaments wherewith they were formerly contained, and as it were continued, are too violently diſtended and relaxed, whence it happens, that I have in theſe caſes often obſerved, that the diligence and care of the Surgeon hath nothing availed.

Chap. XXXV.

Of the diſlocation of the Wreſt.

Here, as before chap. 31, the Author diſſents from *Celſus* and *Hippocrates* in expreſſing the names and ſignes of theſe diſlocations.

WEe underſtand by the wreſt, a certaine bony body, conſiſting of a compoſure of eight bones knit to the whole cubit by *Diarthroſis*. For the wreſt conſidered wholly in its ſelfe, is knit and articulated with the Ell & wand: with that, againſt the little finger; with this, againſt the thumb: for thus as it were by two connexions, the joint is made more firme. Yet may it be diſlocated inwardly, outwardly, & towards the ſides. We ſay it is luxated inwardly when the hand ſtands upwards, but outwardly, when it is crookt in & cannot be extended. But if it chance to be diſlocated ſidewayes, it ſtands awry either towards the little finger, or elſe towards the thumbe, as the luxation befals to this or that ſide. The cauſe hereof may ſeem to depend upon the different dearticulation of the Ell and wand with the hand or wreſt. For the wand, which is articulated on the lower part with the wreſt at the thumbe, by its upper part, whileſt it receives the outward ſwelling or condyle of the Ell in its cavity, performs the circular motions of the hands. But the cubit or ell, which in like ſort is connected on the lower part by *Diarthroſis* at the little finger with the wreſt, being articulated on the upper part with the ſhoulder-bone bends and extends, or ſtretches forth the hand. There is one way to reſtore the formerly mentioned diſlocations. The arm on one ſide and the hand on another muſt be extended upon a hard reſiſting and ſmooth place, ſo that it may lye flat; and you muſt have a care that the part whence the diſlocated bone fell bee the lower in its ſite and place, and the part whether it is gone, the higher. Then to conclude, the prominencies of the bones muſt be preſſed down by the hand of the Surgeon, untill by the force of compreſſion and ſite the luxated bones be thruſt and forced into their places and cavities.

Chap. XXXVI.

Of the diſlocated bones of the Wreſt.

Signe.

THe wreſt conſiſts of eight bones, which cannot unleſſe by extraordinary violence bee put or fall out of their places. Yet if they ſhall at any time fall out, they will ſhew it by the tumor of the part wherto they are gone, and by the depreſſion of that wherefrom they are fled. They may bee reſtored, if the diſeaſed hand bee extended upon a table; and if the bones ſhall be diſlocated inwards, the hand ſhall bee placed with the palme upwards, then

Cure.

the Surgeon ſhall, with the palme of his hand, preſſe downe the eminencies of the bones, and force each bone into its place. But if the luxation bee outwards, he ſhall lay the palme next to the table, and preſſe it after the ſame manner. To conclude, if the luxation ſhall be toward either ſide, the luxated bones ſhall be thruſt towards the contrary, and the reſtored bones ſhall be preſently conteined in their places with fit remedies, binding, rowling, and carrying the hand in a ſcarfe.

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Chap. XXXVII.

Of the diſlocated bones of the After-wreſt.

THere are foure bones in the Palme or After-wreſt, the two middlemoſt whereof cannot be diſlocated ſidewayes, becauſe they are hindred and kept from falling aſide by the oppoſition of the parts, as it were reſiſting them. Neither can that which anſwereth to the little finger, nor that whereon the forefinger reſts, bee diſlocated towards that ſide which is next the middle bones, whereof wee now ſpake, but onely on the other ſide, freed from the neighbour-hood of the bones: but all of them may be diſlocated inwardly and outwardly. They may be reſtored as thoſe of the Wreſt.

Celſus lib. 8. Cap. 18.

Chap. XXXVIII.

Of the diſlocated Fingers.

ALſo the bones of the fingers may bee foure ſeverall waies diſlocated, inwardly, outwardly, and towards each ſide. To reſtore them, they muſt bee laid ſtraight upon a table, and ſo put into joint againe. For thus they may bee eaſily reſtored, by reaſon their ſockets are not deepe, and their joints are ſhorter, and ligaments leſſe ſtronge. In twelve dayes ſpace they will recover their ſtrength, as alſo thoſe diſlocations that happen to the Wreſt and After-wreſt.

Why the diſlocated fingers may be eaſily reſtored.

Chap. XXXIX.

Of a diſlocated Thigh or Hipp.

THe Thigh or Hipp may be diſlocated, and fall forth towards all the foure parts. But moſt frequently inwards, next to that outwards, but very ſeldom either forwards or backwards. A ſubluxation cannot happen in this joint, as neither in the ſhoulder, eſpecially from an externall cauſe, contrary to which it uſually happens in the elbow, hand, knee, and foot. The cauſe hereof is, for that the heads of the thigh and ſhoulder-bone are exactly round, and the ſockets which receive them have certaine borders and edges encompaſſing them: hereunto may be added, that ſtrong muſcles encompaſſe each dearticulation, ſo that it cannot come to paſſe that part of the heads of ſuch bones may bee conteined in the cavity, and other parts ſtand or fall forth, but that they will quickly bee reſtored to their places by the motion and wheeling about of the joint, and the ſtrength of the encompaſſing muſcles. But a ſubluxation may ſeeme to happen in theſe parts from an internall cauſe. For then the ligaments and tyes being ſoftened and relaxed, cannot draw and carry back the head of the bone ſtanding forth ſo far as the edges of the ſocket. If the Hip be diſlocated towards the inner part, that leg becomes longer and larger than the other, but the knee appeares ſomewhat lower, and looks outwardly with the whole foote, neither can the patient ſtand upon his leg. To conclude, the head of the Thigh-bone bewrayes it ſelfe lying in the groin, with a ſwelling manifeſt both to the eye and hand; now the legge is longer than that which is ſound, for that the head of the thigh is out of its ſocket or cavity, and ſituated lower, to wit, in the groin, therefore the leg is made by ſo much the larger. Now the knee ſtands forth, becauſe neceſſarily the lower head of the thigh-bone ſtands contrary to the ſocket. For this is common to all diſlocated bones, that when as the diſlocation happens towards the one ſide, the other end of the bone flyes out to the contrary.

Hip. ſent. 68. ſect. 3. de art.

Gal. com. ad ſent. 47. ſect. 4. de art.

A ſubluxation may befall the Thigh from an internall cauſe.

Whence it is, that if the upperhead of the Thigh-bone ſhall fall inwards, then the other head, which is at the knee, muſt neceſſarily looke outwards. The like happens in other diſlocations. The leg cannot be bended towards the groine, for that the diſlocated bone holds the extending muſcles of the ſame part ſo ſtiffely ſtretched out, that they cannot yeeld, or apply themſelves to the benders. For flexion or bending ought to precede extenſion, and extenſion flexion.

Chap. XL.

Prognoſticks belonging to a diſlocated Hipp.

Why the thigh-bone diſlocated is difficultly reſtored, or reſtored eaſily falls out againe.

THere is this danger in the diſlocations of the Hipp, that either the bone cannot bee put into the place againe, at leaſt unleſſe with very much trouble, or elſe being put in, that it may preſently fall out againe. For if the tendons of the muſcles, the ligaments, and other nervous parts of the member be hard and ſtrong, they by reaſon of their contumacy and ſtiffeneſſe will hardly ſuffer the bone to returne to its place. If that they bee ſoft, looſe, effeminate and weake, they will not containe the reſtored bone in its place. Neither will it be any better contained, if that ſhort, but yet ſtrong and round, ligament, which faſtens the head of the Thigh-bone on the inſide in the Socket or Cavity of the huckle bone, bee broken or relaxed. Now it may be broken by ſome violent ſhocke or accident, it may bee relaxed by the congeſtion and long ſtay of ſome excrementitious, tough, and viſcous humour lying about the joint, through which meanes it waxeth ſoft. But if it be broken, how often ſoever the bone be reſtored, it will preſently fall out againe. If it bee relaxed, there is onely this hope to containe the reſtored bone, that is, to conſume and draw away the heaped up humidity by application of medicines and Cauteries of both kindes, for which purpoſe thoſe are more effectuall which doe actually burne, for that they dry and ſtrengthen more powerfully. Leaneneſſe of the body, and the want of *Aponeuroſes*, that is, of broad tendont and externall ligaments, whereof many encompaſſe the knee, encreaſes the difficulty of containing it in theplace. But the parts adjoyning to the diſlocated & not ſet bone fall away by little & little, and conſume with an *Atrophia* or want of nouriſhment; both becauſe the part it ſelf is forced to deſiſt from the accuſtomed actions and functions, as alſo for that the veines, arteries, and nerves being more ſtraitned and put out of their places, hinder the ſpirits and nouriſhment from flowing ſo freely as they ought, to the part: whence it comes to paſſe, that the part it ſelf made more weak, the native heat being debilitated through idleneſſe, it can neither attract the alimentary juice, neither can it digeſt & aſſimulate that little therof which flowes and falleth thereto. Verily the Thigh-bone, as long as it is forth of the cavity, growes no more, after the manner as the other bones of the body doe, and therefore in ſome ſpace of time you may perceive it to bee ſhorter than the ſound bone. Notwithſtanding the bones of the legge and foote are not hindered of their growth, for that they are not out of their proper places. Now for that the whole leg appears more ſlender, you muſt think that happens only by the extenuation & leanneſſe of the proper muſcles thereof. The ſame thing happens to the whole hand, in the largeſt acception, when as the ſhoulder is out of joint, unleſſe that the calamity and loſſe hereof is the leſſe. For the ſhoulder being forth of joint you may do ſomething with your hand, whereby it will come to paſſe that no ſmall portion of nouriſhment may flow downe into theſe parts. But the Thigh-bone being diſlocated, eſpecially inwards in a child unborn, or an infant, much leſſe alimentary nouriſhment flowes to that part, becauſe it can much leſſe uſe the foot and legge by reaſon of the diſlocation of the Hipp, than it can doe the hand by a luxation of the ſhoulder. But now wee muſt thus underſtand that which is ſaid by *Hippocrates*, That diſlocated bones and not reſtored doe decreaſe or are hindred from their juſt growth, to bee onely in thoſe who have not yet attained to their full and naturally appointed

The breaking and relaxation of the internall ligament.

Gal. com. ad ſent. 42 ſect. 4. de art.

Hippocrates explained *ſect. 1. & 3. lib. de art.*

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growth in every demenſion. For in men of full growth, the bones which are not reſtored, become more ſlender, but yet no ſhorter, as appeares by that which hee hath delivered of the ſhoulder.

CHAP. XLI.

Of the ſignes of the Hipp, diſlocated outwardly or inwardly.

The thigh-bone or Hipp when it is diſlocated outwardly, and not reſtored, after ſome time the paine is aſſwaged, and fleſh growes about it, the head of the bone weares it ſelfe a new cavity in the adjoyning Hipp, whereinto it betakes it ſelfe, ſo that at the length the patients may go without a ſtaffe, neither ſo deformed a leanneſſe will waſte their legge. But if the luxation happen inwards, a greater leanneſſe will befall them, by reaſon that the veſſels naturally run more inwardly, as *Galen* obſerves in the diſlocation of the *Vertebræ* to the inſide; therefore it comes to paſſe that they are more grievouſly oppreſſed: beſides the thigh-bone cannot wagge or once ſtirre againſt the ſhare-bone: wherefore if the bone thus diſlocated bee not reſtored to its joynt againe, then they muſt caſt their legge about as they walke, juſt as wee ſee oxen doe. Wherefore the ſound legge whileſt they go, takes much leſſe ſpace than the lame, becauſe this, whileſt it ſtirreth or moveth, muſt neceſſarily fetch a compaſſe about, but that performeth its motion in a right line. Beſides, whileſt the patients ſtand upon their lame legge to put forwards the ſound, they are forced to ſtand crooked, whereupon they are forced to ſtay themſelves with a ſtaffe that they fall not.

Ad ſent.51.ſect.3 de art.

Furthermore thoſe who have this bone diſlocated either backwards or outwards, ſo that it cannot bee reſtored, have the part it ſelfe grow ſtiffe and hard; which is the cauſe why the ham may bee bended without great paine, and they may ſtand, and goe upon the tops of their toes; beſides alſo, when they deſire ro goe faſter, they are forced to ſtoope, and ſtrengthen themſelves by laying their hand on their lame thigh at every ſtep, both for that their lame legge is the ſhorter, as alſo becauſe the whole weight of the body ſhould not lye wholly or perpendicularly upon the joynt or head of the thigh-bone. Yet in continuance of time, when they are uſed to it, they may goe without any ſtaffe in their hands. Yet in the interim, the ſound leg becomes more deformed in the compoſure & figure, becauſe, whileſt it ſuccours the oppoſite and lame leg by the firme ſtanding on the ground, it beares the weight of the whole body, in performance whererof the ham muſt neceſſarily now and then bend. But on the contrary, when as the head of the thigh being diſlocated inwards is not put into the joynt, if the patient be arrived at his full growth, after that the head of the bone hath made it ſelfe a cavity in the neighbouring bone wherein it may reſt, he may bee able to walke without a ſtaffe, becauſe the diſlocated leg cannot eaſily be bended towards the groine or ham, and he will ſooner reſt upon his heele than upon his toes. This kinde of diſlocation if it bee inveterate, can never be reſtored. And theſe things happen, when as the thigh-bone is diſlocated inwards, or when the internall ligament which faſtens the dearticulation ſhall be broken or relaxed. But the contrary ſhall plainely appeare if the diſlocation ſhall happen to bee outwards; for then the lame legge becomes the ſhorter, becauſe the head of the thigh flyes into a place higher than its cavity, aud the muſcles of that part are contracted towards their originall, and convulſively draw the bone upwards together with them. The whole leg, together with the knee and foot looketh inwards, they cannot goe upon their heels, but upon the ſetting on of the toes. The legge may bee bended, which it cannot bee in a diſlocation of the thigh inwards, as *Paulus* ſhewes. Therefore wee muſt diligently obſerve that ſentence of *Hippocrates* which is read with a negative, in theſe words. *Sed neque conflectere quemadmodum ſanum crus poſſunt*, that they ought to bee read with an affirmative after this manner. *Sed conflectere &c. quin & crus ipſum &c.* But now the lame legge will better ſuſtaine the weight of the body in an externall, than in an internall diſlocation; for then the head of the thigh is more per-

Signes of the thigh-bone diſlocated outwards.

Paul. Æg. lib. 6. cap 8. Hip ſent. 91. ſect 3. lib. de artic.

pendicularly ſubject to the whole weight of the body. Therefore when in ſucceſſe of time it ſhall by wearing have made it ſelfe a cavity in the neighbouring bone, which in time will be confirmed, ſo that there will remaine no hope of reſtoring the diſlocation, nevertheleſſe the patient ſhall be able to goe without a ſtaffe, for that then no ſenſe of paine will trouble him; whence it followes, that the whole leg alſo will become leſſe leane, for that going is leſſe painfull, neither are the veſſels ſo much preſſed as in that diſlocation which is made inwardly.

Chap. XLII.

Of the thigh-bone diſlocated forewards.

IT ſeldome happeneth that the thigh is diſlocated forwards; yet when as it ſhall happen, it is knowne by theſe ſignes. The head of the thigh lyeth towards the ſhare; whence the groines ſwell up, and the buttocke on the contrary is wrinkled and extenuated by reaſon of the contraction of the muſcles; the patient cannot extend his leg without paine, no verily, not ſo much as bend it towards the groine, for that the fore muſcle which ariſeth from the haunch-bone, is ſo preſſed by the head of the thigh, that it cannot be diſtended; neither can the ham be bended without very much paine. But the lame legge is equall at the heel with the other leg, yet the patient cannot ſtand upon the ſetting on of the toes; therefore when he is forced to goe, hee toucheth the ground with his heel only, yea, verily the ſole of his foot is leſſe inclined to the fore ſide, neither doth it ſeldome happen, that the urine, by this accident, is ſuppreſt; because the head of the thigh oppreſſes the greater nerves from whence thoſe ariſe which are carryed to the bladder, which through the occaſion of this compreſſion is pained and inflamed by conſent: now when inflammation ſhall ſeaze upon the *Sphinct* muſcle, the urine can ſcarcely flow out, for that it is hindred by the ſwelling.

Stopping of urine by reaſon of an internall diſlocation of the thigh-bone.

Chap. XLIII.

Of the thigh-bone diſlocated backwards.

Signes

SEldome alſo is the thigh-bone diſlocated backwards, becauſe the hind part of the cavity of the huckle-bone is deeper and more depreſſed than the fore; whence it is that the diſlocation of the thigh to the inner part is more frequent than the reſt. The patient can neither extend nor bend his legge by reaſon of the much compreſſion and tenſion of the muſcles which encompaſſe the head of the thigh by this kind of luxation. But the pain is encreaſed when he would bend his ham, for that then the muſcles are the more ſtrongly extended. The lame leg is ſhorter than the ſound: when the Buttocks are preſſed, the head of the thigh is perceiued hid amongſt the muſcles of that part; but the oppoſite groine is laxe, ſoft, and depreſt with a manifeſt cavity. The heele touches not the ground, for that the head of the thigh is plucked backe againe by the muſcles of the buttocks amongſt which it lyeth hid, but principally by that which is the larger, and which is ſaid to make as it were the pillow or cuſhion of the buttocks; for this is much more preſſed in this kinde of diſlocation than the reſt: whence it is, that the patient cannot bend his knee, becauſe the extenſion of the nervous production or large tendon which covers the knee is ſo great. But if the patient will ſtand upon the foot of his luxated legge without a ſtaffe, he ſhall fall down backwards, for that the body is inclined to that part, the head of the thigh being not directly underneath for the propping or bearing up of the body; wherefore he is forced to ſuſtaine himſelfe upon a crutch on his lame ſide. Having premiſed theſe things of the differences, ſignes, ſymptomes and prognoſticks, it now remaineth, that we briefly deſcribe

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the different wayes of reſtoring them, according to the difference of the parts whither it is fallen. First, you muſt place the patient upon a bench or table, groveling, or with his face upwards, or upon one ſide, laying ſome ſoft quilt or coverlid under him, that he may lye the eaſier. Now you muſt place him ſo, that the part unto which the bone is flown, may be the higher, but from whence it is fled, the lower. For if the thigh-bone bee diſlocated outwards or backwards, then muſt the patient bee laid groveling; if inwardly, upon his backe; if forwards, then upon his ſide. Then muſt extenſion and impulſion be made towards the cavity, that ſo it may bee forced thereinto: but if the diſlocation be freſh, & in a ſoft body, as a woman, childe, and ſuch like, whoſe joynts are more laxe, it ſhall not bee any waies needefull to make great extenſion with ſtrong ligatures for the reſtoring it; the Surgeons hand ſhall ſuffice, or a Liſt or towell caſt about it. In the interim the bone ſhall bee kept faſt with compreſſes applyed about the joynt: then the Surgeon ſhall extend the thigh, taking hold thereof above the knee, in a ſtraight line, and ſo ſet it directly againſt the cavity, and then preſently thruſt it thereinto. For thus ſhall he reſtore it, if ſo bee that in thruſting it, hee lift up the head thereof ſomewhat higher, leſt the lips of the cavity force it backe, and hinder it from entring. Now becauſe unleſſe there bee juſt extenſion, there can be no reſtitution hoped for, it is farre better in that part, that is, to extend it ſomewhat more than is neceſſary, yet ſo, that you doe not endanger the breaking of any muſcles, tendon or other nervous body. For, as *Hippocrates* writes, when as the muſcles are ſtrong and large, you may ſafely extend them, if ſo be that you diſplace nothing by the force of the extenſion. If your hand will not ſuffice to make juſt extenſion, you muſt uſe the helpe of an Engine, ſuch as is our Pulley, faſtened to two poſtes, ſo much of the rope being let forth, and drawn up again, as ſhall ſuffice for the buſineſſe in hand; in the performance whereof, it is fit that the patients friends abſent themſelves from this ſad ſpectacle, and that the Surgeon bee reſolute, and not deterred from his buſineſſe by no lamentation, neither of the patient nor his friends. But for that we write theſe things chiefely for the benefit of young practicioners, it ſeemeth meet, that having delivered theſe things in general, of reſtoring the thigh-bone, that we run over theſe generalities in each particular, beginning with that diſlocation which is made inwardly.

The generall cure.

Sect.2. lib. de fract.

Chap. XLIV.

Of reſtoring the Thigh-bone diſlocated inwards.

IT is fit to place the patient after the foreſaid manner, upon a table or bench, in the midſt wherof ſhall ſtand faſtned a woodden pin of a foots length, and as thick as the handle of a ſpade uſeth to be; but it muſt be wrapped about with ſome ſoft cloth, leſt the hardneſſe hurt the buttocks, betwixt which it muſt ſtand, as we read that *Hippocrates* did in the extenſion of a broken leg. The woodden pin hath this uſe, to hold the body that it may not follow him that draweth or extendeth it; & that the extenſion being made as much as is requiſie, it may go between the *perinæum* & the head of the diſlocated thigh. For thus there is no great need of counter-extenſion towards the upper parts; and beſides it helpeth to force back the bone into its cavity, the help of the Surgeon concurring, who twining ſomewhiles to this, & otherwhiles to that ſide, doth direct the whole work. But when the extenſion hath need of counter-extenſion, then it is needfull you have ſuch ligatures at hand, as we have mentioned in the reſtoring of a diſlocated ſhoulder, to be drawn above the ſhoulder. One of theſe ſhall be faſtned above the joynt of the hip, & extended by a ſtrong man; another ſhalbe caſt above the knee by another with the like force. But if you cannot have a wooden pin, another ſtrong & like ligature ſhalbe put upon the joynt directly at the hip, & held ſtiffe by the hands of a ſtrong man, yet ſo that it may not touch the head of the thigh by preſſing it, for ſo it would hinder the reſtoring thereof. This manner of extenſion is common to foure kinds of luxation of the thigh-bone. But the maner of forcing the bone into its cavity, muſt be varied in each, according to the different condition of the parts where-

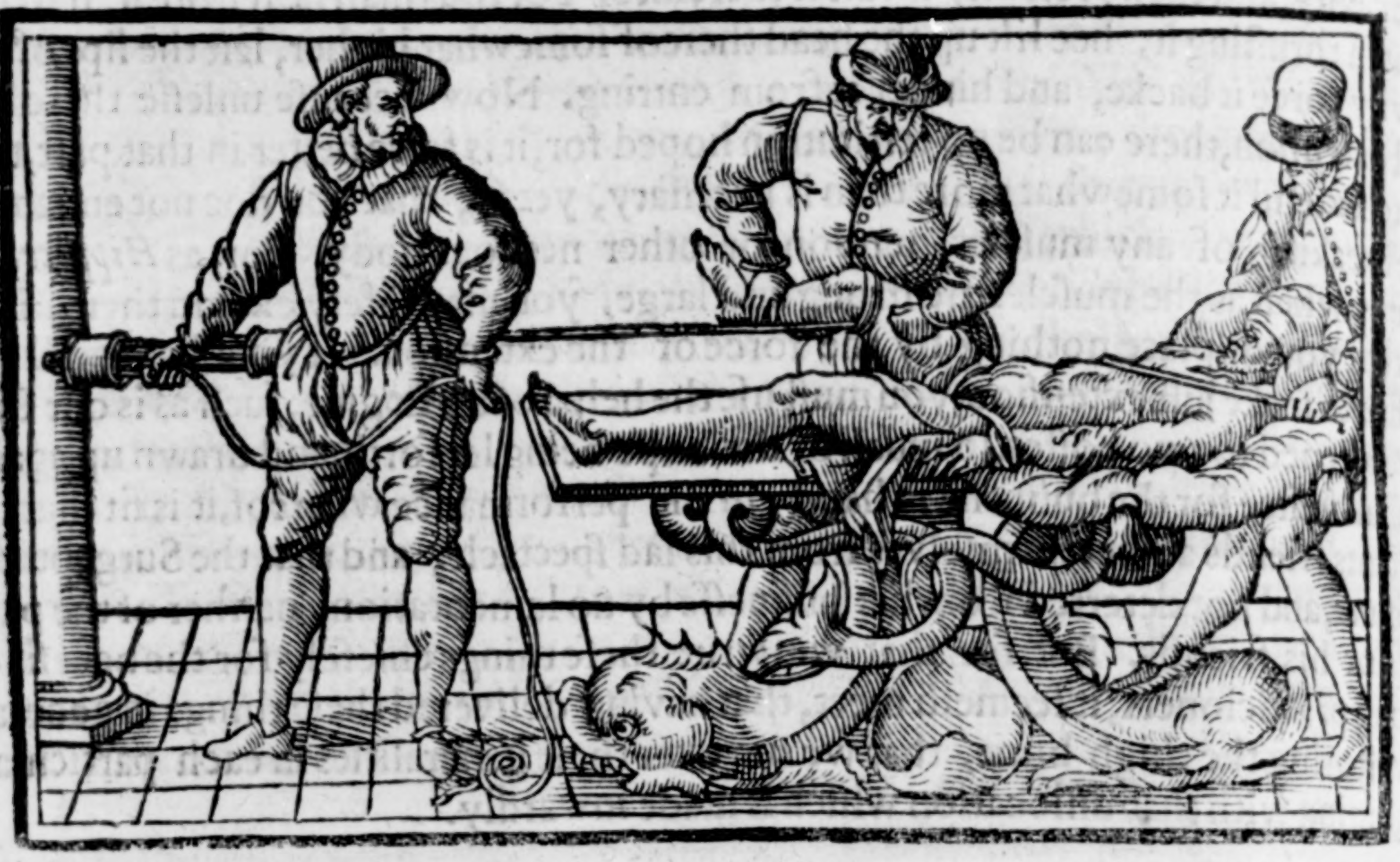
Sect.2. lib. de fract.

How to make extenſion and counter-extenſion in this kind of fracture.

Ligatures made for extenſion muſt be faſtened neere the part to be extended.

whereunto the head inclineth; to wit, it muſt be forced outwards if it bee fallen inwards, and contrary in the reſt, as the kind of the diſlocation ſhall bee. Some too clowniſh and ignorant knot-knitters faſten the lower ligature below the ankle, and thus the joynts of the foot and knee are more extended than that of the hipp or huckle-bone, for that they are neerer to the ligature, & conſequently to the active force: but they ought to doe otherwiſe; therefore in a diſlocated ſhoulder, you ſhall not faſten the ligatures to the hand or wreſt, but above the elbow. But if the hands ſhall not be ſufficient for this worke, then muſt you make uſe of engines. Wherefore then the patient being placed as is fit, and the affected part firmely held, ſome round thing ſhall be put into the groine, and the patients knee, together with his whole leg ſhall be drawne violently inwards, towards the other leg. And in the meane while, the head of the thigh ſhall bee ſtrongly forced towards the cavity of the huckle-bone, and ſo at length reſtored, as the following figure ſhewes.

A figure which manifeſteth the way of reſtoring the thigh-bone diſſocated inwards.



A generall precept.

When the head of the thigh by juſt extenſion is freed from the muſcles wherewith it was infolded, and the muſcles alſo extended that they may give way and yeeld themſelves more pliant, then muſt the rope be ſomewhat ſlaked, and then you muſt alſo deſiſt from extending, otherwiſe the reſtitution cannot bee performed, for that the ſtronger extenſion of the engine wil reſiſt the hand of the Surgeon, thruſting and forcing it into the cavity. This precept muſt bee obſerved in the reſtoring of this & other diſlocations. You ſhall know that the thigh is reſtored by the equality of the legs, by the free & paineleſſe extenſion & inflection of the lame leg. Laſtly, by the application of agglutinative medicines (whereof we have formerly ſpoken) the reſtored bone ſhal be confirmed in its place; to which purpoſe ligation ſhal be made, the ligature being firſt caſt upon the place whereinto the head of the thigh fell, and thence brought to the oppoſite or ſound ſide by the belly and loynes. In the meane while the cavity of the groine muſt bee filled with ſomewhat a thicke bolſter which may keep the head of the bone in the cavity. Neither muſt you omit junks ſtretched down even to the ankles, as we have obſerved in the fracture of the thigh. Then muſt both the thighs be bound together, wherby the diſlocated member may be unmoveable, and more & more ſtrengthned. Neither muſt this dreſſing be looſed, until foure or five dayes be paſſed, unleſſe peradventure the ſudden happening of ſome other more grievous ſymptome ſhall perſwade otherwiſe. To conclude, the patient muſt bee kept in his bed for the ſpace of a moneth, that the relaxed muſcles, nerves and ligaments may have ſpace; to recover their former ſtrength, otherwiſe, there is danger leſt the bone may againe fall out by the too forward and ſpeedy walking upon it.

Sect.2.lib.de fract.

For the ſite of the thigh it muſt be placed and kept in a middle figure, yet this middle figure conſiſts in the extenſion, not in the flexion, as it is demonſtrated by *Hippocrates*, for that ſuch a figure is familiar and accuſtomable to the legge.

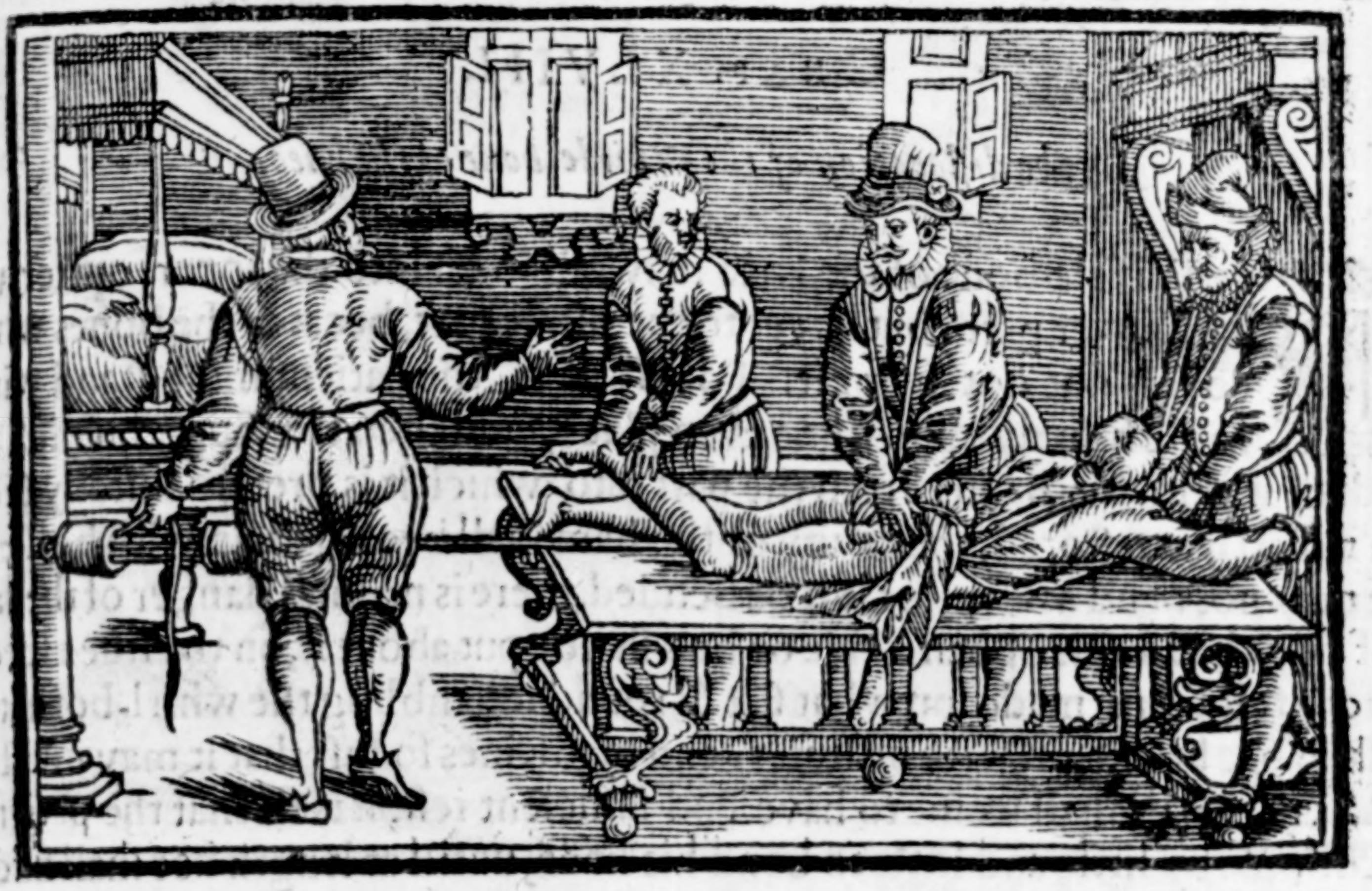
CHAP.

Chap. XLV.

Of reſtoring the Thigh diſlocated outwardly.

THE patient muſt bee placed groveling upon a table in this kinde of diſlocation alſo, and ligatures as before, caſt upon the hip and lower part of the thigh, then extenſion muſt be made downewards, and counter-extenſion upwards; then preſently the head of the bone muſt bee forced by the hand of the Surgeon into its place. If the hand bee not ſufficient for this purpoſe, our pulley muſt be uſed, as the following figure ſheweth.

A figure which expreſſeth the manner of reſtoring the Thigh luxated outwards.



When it is that onely extenſion ſerves for the reſtoring the diſlocated thigh.

This kind of diſlocation is the eaſilyeſt reſtored of all theſe which happen in the thigh or hip, ſo that I have divers tmes obſerved the head of the thigh to have been drawne backe into its cavity by the onely regreſſe of the extended muſcles into themſelves towards their originals, ſomewhiles with a noyſe or pop, otherwhiles without, which being done, laying a compreſſe upon the joynt, you ſhall perform all other circumſtances as before in an internall diſlocation.

Chap. XLVI.

Of reſtoring the Thigh diſlocated forewards.

WHen the thigh is luxated forewards, the patient muſt bee laid upon his ſound ſide, and tyed as wee have formerly delivered. Then the Surgeon ſhall lay a Boulſter upon the prominent head of the bone, and have a care that his ſervant firmely hold it: then immediately juſt extenſion being made, he ſhall with his hand force the bone into the cavity; but if his hand will not ſerve, he ſhall attempt it with his knee. Then to conclude he ſhall uſe the reſt of the things formerly mentioned to containe the reſtored bone.

Chap. XLVII.

Of reſtoring the Thigh diſlocated backwards.

THe patient ſhall be placed groveling upon a table or bench, and the member extended, as in the reſt, one ligature ſtretched from the groine, another from the knee; then the Surgeon ſhall endeavour to force back with his hand that which ſtands up, and alſo to draw away the knee from the ſound legge. The bone thus placed and reſtored, the cure requires nothing elſe, than to be bound up and kept long in bed, leſt that the thigh, if it ſhould be moved, the nerves being yet more looſe, might againe fall out. For the thigh is in great danger of relapſe, for that the cavity of the Huckle-bone is onely depreſt, as farre as it goes in, and the burden of the hanging or adjoyning Thigh is heavie.

Chap. XLVIII.

Of the diſlocation of the Whirle-bone of the knee.

The differences.

The cure.

THe Whirle-bone of the knee may fall forth into the inner, outter, upper and lower part; but never to the hinde part, becauſe the bones which it covers doe not ſuffer it. To reſtore it, the patient muſt ſtand with his foote firmely upon ſome even place, and then the Surgeon muſt force and reduce it with his hands from the part into which it is preternaturally ſlidden. When it ſhall bee reſtored, the cavity of the ham ſhall bee filled up with bolſters, ſo that he may not bend his leg, for if it be bended, there is no ſmal danger of the falling back of the whirl-bone. Then a caſe or box ſhalbe put about it, on the ſide eſpecially whereto it fell, being made ſomwhat flat & round reſembling the whirl-bone its ſelf, and it ſhall bee bound on with ligatures, and medicines ſo faſt that it may not ſtirre a jot. After the part ſhall ſeeme to have had ſufficient reſt, it is fit that the patient try and accuſtome by little and little to bend his knee, untill at length hee ſhall finde that he may eaſily and ſafely move that joint.

Chap. XLIX.

Of the diſlocated Knee.

The differences.

THe knee alſo may be diſlocated three manner of waies, that is, into the inner, outer, and hinde part, but very ſeldom towards the foreſide and that not without ſome grievous and forcible violence; for the Whirle-bone lying upon it, hinders it from ſlipping out, and holds it in. The other wayes are eaſie, becauſe the cavity of the leg-bone is ſuperficiary and very ſmooth, but the cavity of the lower end of the thigh-bone is made in the maner of a ſpout or gutter, & beſids the head therof is very ſmooth and ſlippery; but the whole joint is much more laxe than the joint of the Elbow: ſo that as it may be the more eaſily diſlocated, ſo may it the better be reſtored; and as it may be the more eaſily, ſo may it be the more ſafely diſlocated, for that inflammation is leſſe to bee feared here, as it is obſerved by *Hippocrates*. Falls from high, leaping, and too violent running are the cauſes of this diſlocation. The ſigne thereof is the diſability of bending or lifting up the legge to the thigh, ſo that the patient cannot touch his buttocke with his heele.

Ad finem ſect. 3. de fract.

How to reſtore a knee diſlocated backwards.

The diſlocation of the knee which is inwardly and outwardly is reſtored with indifferent extenſion and forcing of the bones into their ſeats from thoſe parts whereunto they have fallen. But to reſtore a diſlocation made backwards, the patient ſhall be placed upon a bench of an indifferent height, ſo that the Surgeon may be behind him who may bend with both his hands & bring to his buttocks the patients leg put betwixt his owne legges. But if the reſtitution doe not thus ſucceed, you muſt make a clew of yearn, and faſten it upon the midſt of a ſtaffe, let one put this into the cavity of his ham, upon the place whereas the bone ſtands out, and ſo force it forwards; then let another caſt a ligature of ſome three fingers breadth upon his knee, and draw it upwards with his hands, then preſently and at once they all ſhall ſo bend and crooke the lame legge that the heele thereof may touch his buttocks.

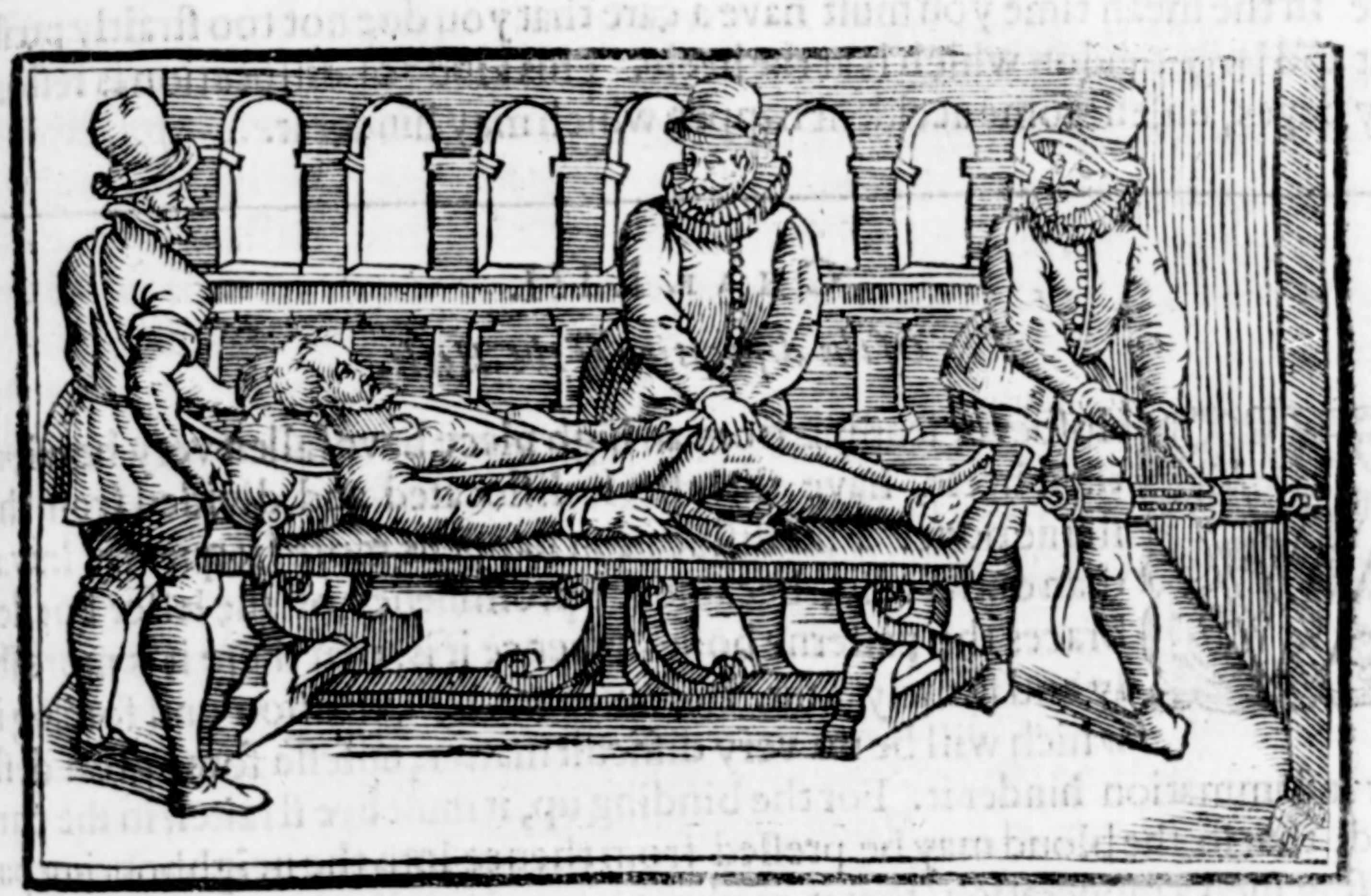
Chap. L.

Of a knee diſlocated forewards.

But if the knee bee diſlocated forwards (which ſeldome happens) the patient ſhall be placed upon a table and a convenient ligation made above, and another cloſe beneath the knee. Then the Surgeon ſhall ſo long preſſe downe with both his hands the bone which is out of joint, untill it ſhall returne to its place againe. To which purpoſe if the ſtrength of the hand will not ſerve to make juſt extenſion each way, you may make uſe of our engine, as you may perceive by this following figure.

The cure.

A figure ſhewing the manner of reſtoring a knee diſlocated forwards.



You ſhall know that the bone is reſtored by the free and paineleſſe extenſion of the legge; then will their bee place for medicines, boulſters and ſtrengthening ligatures. In the meane ſpace the patient ſhall forbeare going, ſo long as the part ſhall ſeeme to require.

Chap. LI.

Of the ſeparation of the greater and leſſer Focile.

The joyning of the leg and ſhin bones.

The *Fibula* or leſſer Focile is faſtened and adheres to the *Tibia*, leg-bone, or greater Focile without any cavity, above at the knee and below at the ankle. But it may bee pluckt or drawne aſide three manner of waies, that is, forwards, and to each ſide: this chance happens when in going we take no ſure footing, ſo that wee ſlip with our feete this way and that way as in a ſlippery place, and ſo wreſt it inwards or outwards; for then the weight of our body lying open upon it, drawes the legge, as it were, inſunder, ſo that the one Focile is diſlocated or ſeparated from the other. The ſame may happen by a fall from an high place, or ſome grievous and bruiſing blow: beſides alſo, their appendices are ſomtimes ſeparated from them. For the reſtoring of all theſe into their proper places, it is fit they bee drawne and forced by the hand of the Surgeon into their ſeats: then ſhall they be ſtraitly bound up, putting compreſſes to that part unto which the *Fibula* flew; beginning alſo your ligation at the very luxation, for the forementioned reaſons. The patient ſhall reſt forty daies, to wit, as long as ſhall bee ſufficient for the ſtrengthening of the ligaments.

The cure.

CHAP. LII.

Of the Leg-bone or greater Focile diſlocated and divided from the Paſterne bone.

Differences and ſignes.

ALſo the Leg-bone is ſometimes diſlocated, and divided from the paſterne bone, as well inwardly, as outwardly; which may bee knowne by the ſwelling out of the bone to this or that part; if it be onely a ſubluxation or ſtraine, it may bee eaſily reſtored, by gently forcing it into the place againe. After the bone ſhall be reſtored, it ſhall be kept ſo by compreſſes and fit deligation, by croſſe and contrary binding to the ſide oppoſite to that towards which the bone fell, that ſo alſo in ſome meaſure it may bee more and more forced into its place. In the mean time you muſt have a care that you doe not too ſtraitly preſſe the great and large tendon which is at the heele. This kinde of diſlocation is reſtored in forty dayes, unleſſe ſome accident happen which may hinder it.

CHAP. LIII.

Of the diſlocation of the Heele.

Cauſes and differences.

WHoſoever leaping from an high place have fallen very heavie upon their heele, have their heele diſlocated and divided from the paſterne bone. This diſlocation happens more frequently inwardly than outwardly, becauſe the prominency of the leſſer Focile embraces the paſterne bone; whence it is, that there it is more ſtraitly and firmely knit. It is reſtored by extenſion and forcing it in, which will be no very difficult matter, unleſſe ſome great defluxion or inflammation hinder it. For the binding up, it muſt bee ſtraiteſt in the part affected, that ſo the bloud may be preſſed from thence into the neighbouring parts; yet uſing ſuch a moderation, that it may not bee painefull, nor preſſe more ſtraitly than is fit, the nerves and groſſe tendon which runnes to the heele. This diſlocation is not confirmed before the fortieth day, though nothing happen which may hinder it. Yet uſually it happeneth that many ſymptomes enſue by the vehemency of the contuſion. Wherefore it will not be amiſſe to handle them in a particular chapter.

The cure.

CHAP. LIV.

Of the Symptomes which follow upon the contuſion of the Heel.

Why bloud-letting neceſſary in the fracture of a heele.

IT happeneth by the vehemency of this contuſion, that the veines and arteries do as it were vomit up bloud both through the ſecret paſſages of their coates, as alſo by their ends or orifices, whence an *Ecchymoſis* or blackneſſe over all the heel, paine, ſwelling, and other the like enſue, which implore remedies, & the Surgeons helpe, to wit, convenient diet, and drawing of bloud by opening a veine (of which though *Hippocrates* makes no mention, yet it is here requiſite by reaſon of the feaver and inflammation) and if need require purgation, princi-

Hip. ſect. 3. de fracturis.

principally ſuch as may divert the matter by cauſing vomit, and laſtly, the application of locall medicines, chiefly ſuch as may ſoften and rarifie the skin under the heel, otherwiſe uſually hard and thick (ſuch as are fomentations of warme water & oile) ſo that divers times wee are forced to ſcarifie it with a lancet, ſhunning the quicke fleſh. For ſo at length the blood poured forth into the part, and there heaped up, is more eaſily attenuated and at length reſolved. But theſe things muſt all bee performed before the inflammation ſeaze upon the part, otherwiſe there will be danger of a convulſion. For the bloud, when it falls out of the veſſels, readily putrefies, by reaſon the denſity of this part hinders it from ventilation and diſperſing to the adjacent parts. Hereto may be added that the large and great Tendon which covers the heele, is endued with exquiſite ſenſe, and alſo the part it ſelfe is on every ſide ſpred over with many nerves. Beſides alſo there is further danger of inflammation by lying upon the backe and heele, as we before admoniſhed you in the Fracture of a leg. Therefore I would have the Surgeon to bee here moſt attentive and diligent to performe theſe things which we have mentioned, leſt by inflammation a Gangrene and mortification (for here the ſanious fleſh preſently falls upon the bone) happen together with a continued and ſharp feaver, with trembling, hicketting and raveing. For the corruption of this part firſt by contagion aſſailes the next, and thence a feaver aſſailes the heart by the arteryes preſſed and growing hot by the putride heat, & by the nerves and that great and notable tendon made by the concourſe of the three muſcles of the calfe of the legge, the muſcles, braine and ſtomach are evilly affected and drawne into conſent, and ſo cauſe convulſions, raving and a deadly hicketting.

Why the heele is ſubject to inflammation.

Gal. ad ſent. 33 ſect. 2. lib. de fract.

Chap. LV.

Of the diſlocated paſterne or Ancle-bone.

Signes.

THe *Aſtragalus* or Paſterne bone may bee diſlocated and fall out of its place to every ſide. Wherefore when it falls out towards the inner part, the ſole of the foot is turned outwards, when it flyes out to the contrary, the ſign is alſo contrary: if it be diſlocated to the foreſide, on the hinde ſide the broad Tendon comming under the heel is hardened and diſtended; but if it be luxated backwards, the whole heel is as it were hid in the foot: neither doth this kinde of diſlocation happen without much violence. It is reſtored by extending it with the hands, and forcing it into the contrary part to that from whence it fell. Being reſtored it is kept ſo by application of medicines and fit ligation. The patient muſt keepe his bed long in this caſe, leſt that bone which ſuſteines and bears up the whole body, may againe ſinke under the burden, and breake out, the ſinewes being not well knit and ſtrengthened.

Cure.

Chap. LVI.

Of the diſlocation of the Inſtep and backe of the foot.

THe bones alſo of the Inſtep and backe of the foot may be luxated, and that either upwards or downwards, or to one ſide, though ſeldome ſidewiſe, for the reaſon formerly rendred, ſpeaking of the diſlocation of the like bones of the hand. If that they ſtand upwards, then muſt the patient tread hard upon ſome plaine or even place, and then the Surgeon by preſſing them with his hand ſhall force them into their places; on the contrary, if they ſtand out of the ſole of the foote, then muſt you preſſe them thence upwards, and reſtore each bone to its place. They may bee reſtored after the ſame manner if they bee flowne out to either ſide. But you muſt note that although the ligatures conſiſt but of one head

Cure.

in

Sent.14. ſect.2. lib. de fract.

in other diſlocatious, yet here *Hippocrates* would have ſuch uſed as have two heads, for that the diſlocation happens more frequently from below upwards, or from above downewards, than ſidewiſe.

Chap. LVII.

Of the diſlocation of the Toes.

The differences.

Cure.

NOw the Toes may bee foure waies diſlocated, even as the fingers of the hand; and they may be reſtored juſt after the ſame manner, that is, extend them directly forth, and then force each joint into its place, and laſtly bind them up as is fitting. The reſtitution of all of them is eaſie, for that they cannot farre tranſgreſſe their bounds. To conclude, the bones of the feet are diſlocated and reſtored by the ſame meanes as thoſe of the hands, but that when as any thing is diſlocated in the foote, the patient muſt keepe his bed, but when any thing is amiſſe in the hand, he muſt carry it in a ſcarfe. The patient muſt reſt twenty dayes, that is, untill he can firmely ſtand upon his feet.

Chap. LVIII.

Of the ſymptomes, and other accidents which may befall a broken or diſlocated member.

MAny things may befall broken or diſlocated members by the meanes of the fracture, or diſlocation; ſuch as are bruiſes, great paine, inflammation, a fever, impoſtume, gangrene, mortification, ulcer, *fiſtula*, and *atrophia*, all which require a skilfull and diligent Surgeon for their cure. A contuſion happens by the fall of ſome heavie thing upon the part, or by a fall from high, whence followes the effuſion of bloud poured out under the skinne: which if it be poured forth in great plenty, muſt be ſpeedily evacuated by ſcarification, and the part eaſed of that burden, leſt it ſhould thence gangrenate. And by how much the bloud ſhall appear more thick and the skin more denſe, by ſo much the ſcarification ſhall be made more deepe. You may alſo for the ſame purpoſe apply leaches.

Remedies for a contuſion.

What may happen by paine.

Concerning paine wee formerly ſaid, that it uſually happens by reaſon that the bones are moved out of their places, whence it happeneth that they become troubleſome to the muſcles and nerves by pricking and preſſing them. Hence enſue inflammations, as alſo impoſtumation and a feaver, oft times a gangrene, and in concluſion a mortification corrupting and rotting the bones; otherwhiles a ſinuous ulcer or *fiſtula*. But an *Atrophia* and leaneneſſe ariſeth by the ſloth and idleneſſe of the member decaying all the ſtrength therof, and by too ſtrait ligation intercepting the paſſages of the bloud otherwiſe ready to fall and flow thither.

Remedies for the leaneneſſe or *Atrophia* of any member.

Now the leanneſſe which is occaſioned by too ſtrait ligation receives cure by the ſlackening of the ligatures wherewith the member was bound. That which proceeds from idleneſſe is helped by moderate exerciſe, by extending, bending, lifting up and depreſſing the member, if ſo bee that he can away with exerciſe. Otherwiſe he ſhall uſe frictions and fomentations with warme water. The frictions muſt be moderate in hardeneſſe and gentleneſſe, in length and ſhortneſſe. The ſame moderation ſhall be obſerved in the warmneſs of the water, and in the time of fomenting. For too long fomenting reſolves the blood that is drawne. But that which is too little or ſhort a ſpace drawes little or nothing at all: after the fomentation, hot and emplaſtick medicines made of pitch, turpentine, *euphorbium*, pellitory of Spaine, ſulphur, and the like, ſhall bee applyed. They ſhall bee renued every day more often or ſeldome, as the thing it ſelfe ſhall ſeeme to require.

What meaſure to be uſed in fomenting.

A dropax.

Binding of the ſound part oppoſite to the emaciated.

Theſe medicines are termed *Dropaces*; whoſe forme is thus. ℞ *picis nigræ, ammoniaci, bdelii, gummi elemi in aqua vitæ diſſolutorum an.* ℥ii. *olei laurini* ℥i. *pulveris piperis, Zinziberis, granorum paradiſi, baccarum lauri et juniperi, an.* ʒii *fiat emplaſtrum ſecundum artem, extendatur ſuper alutam.* It is alſo good to binde about the oppoſite ſound part with a ligature, yet without pain; as if the right arme ſhall decay for want of nouriſhment, the left ſhall bee bound, beginning your ligation at the hand, and continuing it to the Arme-pit. If this miſchance ſhall ſeaze upon the right leg, then the left ſhall be ſwathed up from the ſole of the foote to the groine. For thus a great portion of the bloud is forced back into the *vena cava*, or hollow veine, and from this being diſtended and over full, into the part affected and gaping with the veſſels almoſt empty; beſides alſo it is convenient to keepe the ſound part in reſt, that ſo it may draw the leſſe nouriſhment, and by that meanes there will bee more ſtore to refreſh the weake part.

How to bind up the emaciated part.

Some wiſh alſo to bind up the decaying member with moderate ligation; for thus, ſay they, the bloud is drawne thither; for when as wee intend to let blood by opening a veine with a lancet, we bind the arme. Alſo it is good to dip it into water ſomewhat more than warme, and hold it there untill it grow red and ſwell; for thus bloud is drawne into the veines, as they find, which uſe to draw blood of the *ſaphena* and *ſalvatella*. Now if, when as theſe things and the like bee done, the lame part grow hot, red and ſwollen, then know that health is to be hoped for; but if the contrary happen, the caſe is deſperate, wherefore you need attempt nothing further.

Signes that an *Atrophia* is cureable.

Furthermore, there is ſometimes hardneſſe left in the joints, after fractures and diſlocations are reſtored. It is fit to ſoften this, by reſolving the conteined humor by fomentations, liniments, cataplaſmes, emplaſters made of the roots of Marſh-mallowes, briony, lillies, line ſeed, fenugreek ſeed, and the like, and alſo of gums diſſolved in ſtrong vineger, as *Ammoniacum, bdelium, opopanax, labdanum, ſagapenum, ſtyrax liquida*, and *Adeps anſerinus, gallinaceus, humanus, oleum liliorum*, and the like. Alſo you muſt wiſh the patient to move the part ever now and then, every day, yet ſo, that it be not painefull to him, that ſo the pent up humour may grow hot, bee attenuated, and at length diſcuſſed, and laſtly, the part it ſelfe reſtored as farre as art can perform it; for oft times it cannot be helped any thing at all. For if the member be weake and lame by reaſon that the fracture happened neere the joint, for the reſidue of his life the motion thereof uſeth to bee painefull and difficult, and oft times none at all, eſpecially if the *Callus* which grows there be ſomewhat thick and great; and laſtly, if the joint it ſelfe ſhall bee contuſed and broken by the ſtroake, as it ofttimes happens in wounds made by Gun-ſhot.

The End of the ſixteenth Booke.

OF DIVERS OTHER PRETERNATURALL AFFECTS, WHOSE CURE IS COMMONLY PERFORMED BY SURGERY.

THE SEVENTEENTH BOOKE.

CHAP. I.

Of an Alopecia, *or the falling away of the haires of the head.*

AN *Alopecia* is the falling away of the haire of the head, and ſometimes alſo of the eye-browes, chin and other parts; the French commonly call it the *Pelade*. Phiſicians terme it the *Alopecia*, for that old Foxes ſubject, by reaſon of their age, to have the ſcab, are troubled oft times with this diſeaſe. This affect is cauſed either through defect of nouriſhment fit to nouriſh the haires, as in old age through want of the radicall humidity, or by the corruption of the alimentary matter of the ſame, as after long fevers, in the *Lues venerea*, leproſie, the corruption of the whole body and all the humours, whence followeth a corruption of the vapours and fuliginous excrements; or elſe by the vitious conſtitution of the pores in the skin in rarity, and conſtriction or denſity, as by the too much uſe of hot oyntments made for colouring the hair, or ſuch as are uſed to take off haire, therefore called *Depilatoria*, or by the burning of the skin, or loſſe thereof, having a ſcarre in ſtead thereof, by reaſon of whoſe denſity the haire cannot ſpring out, as by too much laxity the fuliginous matter of the haire ſtayes not, but preſenly vaniſheth away. The *Alopecia* which comes by old age, a conſumption, burne, baldneſſe, leproſie and a ſcald head, is uncurable: that which admits of cure, the cauſe being taken away, is helped. Wherefore, if it proceed from the corruption of humours, let a Phiſician bee called, who as hee ſhall thinke it fit, ſhall appoint diet, purging and phlebotomie. Then the Surgeon ſhall ſhave off that haire which is remaining, and ſhall firſt uſe reſolving fomentations, apply Leaches and Horns to digeſt the vicious humour which is under the skin, then ſhall he waſh the head to take away the filth with a lye wherein the roots of Orris and Aloes have been boyled. Laſtly, hee ſhall uſe both attractive fomentations and medicines for to draw forth the humour which is become laudable in the whole body by the benefit of diet fitly appointed. But if the *Alopecia* ſhall happen through defect of nouriſhment, the part ſhall bee rubbed ſo long

Gal. c. 2. lib. 1. de comp. med. ſecun. locos.

The cauſe.

What *Alopecia* uncurable. What curable, and how.

with a courſe linnen cloth, or a figge leafe, or onions, untill it waxe red; beſides alſo the skin ſhall bee pricked in many places with a needle, and then ointments applied made of *Labdanum*, pigeons dung, ſtaviſager, oile of bayes, turpentine and waxe, to draw the bloud and matter of the haires. If the haire be loſt by the *Lues venerea*, the patient ſhall be annointed with quickſilver to ſufficient ſalivation. To conclude, as the cauſes of this diſeaſe ſhall be, ſo muſt the remdies be fitted which are uſed.

CHAP. II.

Of the Tinea, *or ſcalde Head.*

Lib.1.de comp. med.ſect.locos.

Cap.8.lib.citati.

The cure.

For a ſcaly ſcall.

An oyntment for a ſcalled head.

THE *Tinea* (let me ſo terme it in Latine, whilſt a fitter word may be found) or a ſcald head, is a diſeaſe poſſeſſing the muſculous skin of the head or the hairy ſcalpe, and eating thereinto like a moth. There are three differences thereof, the firſt is called by *Galen* ſcaly or branlike, for that whilſt it is ſcratched it caſts many branlike ſcales: ſome Practitioners terme it a dry ſcall, becauſe of the great aduſtion of the humour cauſing it. Another is called *ficoſa*, a fig-like ſcall, becauſe when it is diſpoyled of the cruſt or ſcab which is yellow, there appeare graines of quick and red fleſh, like to the inner ſeeds or graines of figges, and caſting out a bloudy matter. *Galen* names the third *Achor*, and it is alſo vulgarly termed the corroſive or ulcerous ſcall, for that the many ulcers wherewith it abounds are open with many ſmall holes flowing with liquid *ſanies* like the waſhing of fleſh, ſtinking, corrupt and carrion-like, ſomewhiles livid, ſomewhiles yellowiſh. Theſe holes, if they be ſomewhat larger, make another difference which is called *Cerion* or *Favoſa* (that is, like a hony combe) becauſe as *Galen* thinks, the matter which floweth from theſe, reſembleth hony in colour and conſiſtence. They all proceed of an humour which is more or leſſe vicious, for a leſſe corrupt humour cauſeth a ſcaly, a more corrupt, the fig-like, but the moſt corrupt produceth the ulcerous. If it ſhall happen to an infant by reaſon of the fault and contagion of the nurſe, or elſe preſently after it is borne, it ſcarce admits of cure; neither muſt we attempt that before the child come to that age, that he may be able to endure the cure & medicines. But you may in the meane while apply the leaves of Colworts or beets beſmeared with freſh butter, or other gentle medicine having a faculty to mollifie and open the paſſage for the ſhut up matter. Thoſe who are of ſufficient age to away with medicines, may bleed, purge, bathe, according to art by the advice of a Phiſician. For locall medicines in a ſcaly ſcall, ſoftning and diſcuſſing fomentations ſhall bee appointed, made of the roots of marſh-Mallowes, Lillies, Docks, Sorrell boyled in lye with a little vineger added thereto. The head ſhall bee twice in a day fomented with ſuch a decoction, and on the ſixth day the haire being ſhaven off, it ſhall bee ſcarified, and then leaches and hornes put to it ſo ſcarified. Then it ſhall be forthwith annoynted with oyle of ſtaviſager mixed with blacke ſope, both to draw & repreſſe the malignity of the humour impact in the part. You may alſo uſe the following medicine even to the perfect cure of the diſeaſe, as that which is much commended in this kind of diſeaſe by *Vigo*, *Gordonius*, and *Guido*; it is thus made. ℞. *elleb albi & nigri, attrament. auripigmenti, lithargyri auri, calcis vivæ, vitriol. alum. galla. fulig. ciner. fæcis vini uſti, an* ℥ ß. *argenti vivi extincti*, ℥iii *æruginis æris* ℥ii. *fiat pulvis qui incorporetur cum ſucco boraginis, ſcabioſæ, fumariæ, oxylapathi, aceti, an. quart.* i. *olei antiqui lib.*i. *bulliant uſque ad conſumpt. ſuccorum, in fine decoctionis cineres ponantur, addendo picis liquidæ* ℥ ß. *ceræ quantum ſufficit, fiat unguentum*: Theſe authors teſtifie that this will heale any kind of ſcall. Certainely none can diſallow of it who well conſidereth the engredients and compoſure thereof.

The cure of a cruſty ſcall.

A poultis of Creſſes.

A cruſty alſo or fig-like ſcall ſhall bee ſo long fomented with the preſcribed fomentation, untill the cruſts or ſcabs fall off, yet there is nothing ſo good and effectuall as Creſſes beaten or tryed with hogs ſuet. For it will make it fall off in the ſpace of foure and twenty houres, beſides, if it be continued it will heale them throughly, as I have knowne by experience, and reaſon alſo ſtands therewith; for according to

Lib.7.ſimpl.

Galen, Creſſes are hot and dry. When the cruſts ſhall bee fallen away, the parts affected ſhall bee annoynted with the formerly preſcribed ointment. I have cured many with a little oyle of vitrioll, and ſometimes alſo with *Ægyptiacum* made ſomewhat more ſtrong than ordinary. But if the root of the haires appeare rotten, they ſhall bee plucked out one by one; yet if ſuch putrefaction ſhall poſſeſſe the whole hairy ſcalpe, and trouble all the roots of the haire, that you may plucke them out the more readily, & with leſſe paine, you may beſmeare a cotten cloth on the rougher ſide with this following medicine. ℞. *picis nigra* ℥vi. *picis reſ.* ℥ii *pul. viridis æris, & vitriol. rom. an.* ℥i. *vel* ℥ß. *ſulphur. viv.* ʒß. *coquantur omnia ſimul in aceti acerrimi quantitate ſufficiente, fiat medicamentum ad uſum:* let it be applyed to the head, and remaine on for two dayes; then let it bee quickly and forcibly plucked away againſt the haire, that ſo the haires ſticking to the plaiſter may by that meanes be plucked away therewith: you ſhall uſe this medicine ſo long as need ſhall ſeem to require.

A plaiſter to pluck away the haire at once.

The cure of an ulcerous ſcall.

For the third kind of ſcall which is termed a Corroſive or ulcerous, the firſt indication is to cleanſe the ulcers with this following ointment. ℞. *unguenti enulati cum mercurio duplicato, ægyptiaci, an.* ℥iii. *vitriol. albi in pulverem redacti* ʒi. *incorporentur ſimul, fiat unguentum ad uſum*; alſo you may uſe the formerly deſcribed ointment. But if any paine or other accident fall out, you muſt withſtand it by the aſſiſtance and direction of ſome good Phiſitian; verily theſe following medicines againſt all kinds of Scalls have been found out by reaſon, and approved by uſe. ℞. *Camphur.* ℥ß. *alum. roch. vitriol. vir. æris, ſulph. vivi, fulig. forn. an.* ʒvi. *olei amygd. dulcium & axungiæ porci, an.* ʒii. *incorporentur ſimul in mortario, fiat unguentum.* Some take the dung which lyeth rotting in a ſheep-fold; they uſe that which is liquid, & rub it upon the ulcerated places, & lay a double cloth dipped in that liquor upon it. But if the patient cannot be cured with all theſe medicines, & that you find his body in ſome parts therof troubled in like ſort with cruſty ulcers, I would wiſh that his head might be anointed with an ointment made of *Axungia, argentum vivum*, & a little *Sulphur*, & then fit ſom *emplaſtrum Vigonis cum mercurio* into the faſhion of a cap; alſo ſome plaiſters of the ſame may be applyed to the ſhoulders, thighs and legs, and ſo let him be kept in a very warme chamber, and all things done as if he had the *Lues venerea*. This kinde of cure was firſt (that I know of) attempted by *Simon Blanch* the Kings Surgeon, upon a certaine young man, when as he in vaine had diligently tryed all other uſuall medicines. A ſcalled head oft-times appeareth very loathſome to the eye, caſting forth virulent and ſtinking *ſanies*; at the firſt it is hardly cured, but being old, far more difficultly. For divers times it breaketh out afreſh, when you thinke it kild, by reaſon of the impreſſion of the maligne putrefaction remaining in the part, which wholly corrupts the temper thereof. Moreover, oft-times being healed, it hath left an *Alopecia* behind it, a great ſhame to the Surgeons. Which is the reaſon, that moſt of them judge it beſt to leave the cure thereof, to Empericks and women.

A contumacious ſcall muſt be cured as we cure the *Lues Venerea*.

CHAP. III.

Of the Vertigo, *or Giddineſſe.*

What the *Vertigo* is, and the cauſes thereof.

THE *Vertigo* is a ſudden darkening of the eyes and ſight by a vaporous & hot ſpirit which aſcendeth to the head by the ſleepy arteryes, and fils the braine, diſturbing the humours and ſpirits which are conteyned there, & toſſing them unequally, as if one ran round, or had drunk too much wine. This hot ſpirit oft-times riſeth from the heart upwards by the internall ſleepy arteryes to the *Rete mirabile*, or wonderfull net; otherwhiles it is generated in the brain, its ſelfe being more hot than is fitting; alſo it oft-times ariſeth from the ſtomack, ſpleen, liver and other entrals being too hot. The ſigne of this diſeaſe is the ſudden darkening of the ſight, and the cloſing up as it were of the eyes, the body being lightly turned about, or by looking upon wheeles running round, or whirle pits in waters,

The ſignes.

Lib.6.

A criticall *Vertigo.*

ters, or by looking downe any deepe or ſteep places. If the originall of the diſeaſe proceed from the braine, the patients are troubled with the head-ach, heavineſſe of the head, and noyſe in the eares, and oft-times they loſe their ſmell. *Paulus Ægineta* for the cure bids us to open the arteries of the temples. But if the matter of the diſeaſe ariſe from ſome other place, as from ſome of the lower entrals, ſuch opening of an artery little availeth. Wherefore then ſome skilfull Phiſitian muſt be conſulted with, who may give directions for phlebotomie, if the original of the diſeaſe proceed from the heat of the entrals; by purging, if occaſioned by the fouleneſſe of the ſtomack. But if ſuch a *Vertigo* be a criticall ſymptome of ſome acute diſeaſe affecting the *Criſis* by vomit or bleeding, then the whole buſineſſe of freeing the patient thereof muſt be committed to nature.

CHAP: IV.

Of the Hemicrania, *or Megrim.*

The differences.

In what kind of Megrim the opening of an Artery is good.

A hiſtory.

THE Megrim is properly a diſeaſe affecting the one ſide of the head, right, or left. It ſometimes paſſeth no higher than the temporall muſcles, otherwhiles it reacheth to the toppe of the crowne. The cauſe of ſuch paine proceedeth eyther from the veynes and externall arteryes, or from the *meninges*, or from the very ſubſtance of the braine, or from the *pericranium*, or the hairy ſcalpe covering the *pericranium*, or laſty, from putride vapours ariſing to the head from the ventricle, wombe, or other inferiour member. Yet an externall cauſe may bring this affect, to wit, the too hot or cold conſtitution of the encompaſſing ayre, drunkenneſſe, gluttony, the uſe of hot and vaporous meates, ſome noyſome vapour or ſmoake, as of Antimony, quick-ſilver, or the like, drawne up by the noſe, which is the reaſon that Goldſmythes, and ſuch as gilde mettals are commonly troubled with this diſeaſe. But whence ſoever the cauſe of the evill proceedeth, it is either a ſimple diſtemper, or with matter; with matter, I ſay, which againe is either ſimple or compound. Now, this affect is either alone, or accompanied with other affects, as inflammation and tenſion. The heavineſſe of head argues plenty of humour; pricking, beating and tenſion ſhewes that there is plenty of vapours mixed with the humours, and ſhut up in the nervous, arterious, or membranous body of the head. If the paine proceed from the inflamed *meninges*, a fever followeth thereon, eſpecially, if the humour cauſing paine doe putrefie. If the paine be ſuperficiary, it is ſeated in the *pericranium*. If profound, deepe and piercing to the botome of the eyes, it is an argument that the *meninges* are affected, and a feaver enſues, if there be inflammation, and the matter putrefie; and then oft-times the tormenting paine is ſo great and grievous, that the patient is affraid to have his head touched, if it be but with your finger, neither can hee away with any noiſe, or ſmall murmuring, nor light, nor ſmels however ſweet, no nor the fume of Vine. The paine is ſometimes continuall, otherwhiles by fits. If the cauſe of the pain proceed from hot, thin & vaporous bloud, which will yeeld to no medicines, a very neceſſary, profitable & ſpeedy remedy may be had by opening an artery in the temples, whether the diſeaſe proceed from the internall or externall veſſels. For, hence alwayes enſueth an evacuation of the conjunct matter, bloud and ſpirits. I have experimented this in many, but eſpecially in the Prince de la *Roche-ſur-you*. His Phyſitians, when hee was troubled with this grievous Megrim, were *Chaplaine*, the Kings, and *Caſtellane*, the Queenes chiefe Phiſitians, and *Lewes Duret*, who notwithſtanding could helpe him nothing by bloud-letting, cupping, bathes, frictions, diet or any other kind of remedy either taken inwardly or applyed outwardly. I being called, ſaid, that there was onely hope one way to recover his health, which was to open the artery of the temple in the ſame ſide that the paine was; for I thought it probable, that the cauſe of his pain was not contained in the veins, but in the arteries, in which caſe by the teſtimony of the ancients, there was nothing better than the opening or bleeding of an artery, whereof I had made tryall upon my ſelfe to my great good. When as the Phyſitians had approved of this my advice, I preſently betake my ſelfe to the work, and chooſe out the artery in the pained temple; which was both the more ſwolne and beat more vehemently than the reſt. I open this, as wee uſe to doe in the bleeding of a veine, with one inciſion, and take more than two ſawcers of blood flying out with great violence, and leaping; the paine preſently ceaſed, neither did it ever moleſt him againe. Yet this opening of an Artery is ſuſpected by many, for that it is troubleſome to ſtay the guſhing forth bloud, and cicatrize the place, by reaſon of the denſity, hardneſſe, and continuall pulſation of the artery, and laſtly, for that when it is cicatrized there may be danger of an *Aneuriſma*. Wherefore they thinke it better firſt to divide the skin, then to ſeparate the artery from all the adjacent particles, and then to binde it in two places, and laſtly divide it, as we have formerly told you muſt be done in *Varices*. But this is the opinion of men who fear all things where there is no cauſe; for I have learnt by frequent experience that the apertion of an artery, which is performed with a Lancet, as wee doe in opening a veine, is not at all dangerous; and the conſolidation or healing is ſomewhat ſlower than in a veine, but yet will bee done at length, but that no flux of bloud will happen, if ſo bee that the ligation be fitly performed, and remaine ſo for foure dayes with fitting pledgets.

No danger in opening an artery.

CHAP. V.

Of certaine affects of the eyes, and firſt of ſtaying up the upper eye-lidde when it is too laxe.

OF the diſeaſes which befall the eies, ſome poſſeſs the whole ſubſtance thereof, as the *Ophthalmia*, a *Phlegmon* therof: others are proper and peculiar to ſome parts thereof, as that which is termed *Gutta ſerena* to the opticke nerve. Whence *Galen* made a threefold difference of the diſeaſes of the eyes, as that ſome happened to the eye by hurting or offending the chiefe organ thereof, that is, the cryſtalline humour; others by hindering the animall faculty, the chiefe cauſer of ſight, from entring into them; and laſtly, other ſome by offending the parts ſubſervient to the prime organ or inſtrument. Now of all theſe diſeaſes, the eye hath ſome of them common with the other parts of the body, ſuch as are an ulcer, wound, *phlegmon*, contuſion and the like: other ſome are peculiar and proper to the eye, ſuch as are the *Ægilops*, *Cataracta*, *Glaucoma*, and divers others of this kinde. Some have their upper eie-lid fall down, by reaſon that the upper skin thereof is relaxed more than is ſufficient to cover the eye, the griſtle in the meane while not relaxing it ſelfe together therewith. Hence proceeds a double trouble; the firſt, for that the eye cannot bee eaſily opened; the other, becauſe the haires of the relaxed eye-lid run in towards the eye, and become troubleſome thereto by pricking it. The cauſe of ſuch relaxation is either a particular palſie of that part, which is frequent in old people, or the defluxion or falling downe of a watriſh humour, and that not acride or biting; which appeares by this, that thoſe who are thus affected have a ranke of haires growing under the naturall ranke, by reaſon of the aboundance of heaped up humour, as it is moſt probable. For thus a wet and mariſh ground hath the greateſt plenty of graſſe. Now if this ſame humour were acride, it would cauſe an itching, and conſequently become troubleſome to the patient, and it would alſo fret in ſunder and deſtroy the roots of the other haires, ſo farre it is from yeelding matter for the preternaturall generation of new. It is fit, before you doe any thing for the cure, that you marke with inke the portion thereof which is ſuperfluous, and therefore to be cut away, leſt if you ſhould cut off more than is requiſite, the eye-lid ſhould remaine turned up, and ſo cauſe another kinde of affect, which the ancients have called *Ectropion*. Then the eye being covered, take and lift up with your fingers the middle part of the skin of the eye-lid, not taking hold of the griſtle beneath it, and then cut it athwart, taking away juſt ſo much

Differences.

Paul. Ægin. lib. 6. cap. 6.

The cauſe.

The cure.

as ſhall be neceſſary to make it as it were naturall; laſtly, joine the lips of the wound together with a ſimple ſuture of three or foure ſtiches, that ſo it may bee cicatrized; for the cicatrization reſtraines the eie-lid from falling downe ſo looſly, at leaſt ſome part thereof being taken away. There ought to be ſome meaſure, and heed taken in the amputation, otherwiſe you muſt neceſſarily run into the one or other inconvenience, as if too much be cut away, then the eye will not bee covered, if too little, then you have done nothing, and the patient is troubled to no purpoſe. If there ſhall bee many haires growne preternaturally, you ſhall plucke them away with an inſtrument made for the ſame purpoſe; then their roots ſhall be burned with a gentle cautery, the eye being left untoucht, for a ſcar preſently ariſing will hinder them from growing againe.

CHAP. VI.

Of Lagophthalmus, *or the Hare eye.*

Paulus Ægin. lib.6.cap. 10.

SUch as have their eie-lids too ſhort, ſleep with their eyes open, for that they cannot be covered by the too ſhort skin of the eye-lids: the Greekes terme this affect, *Lagophthalmos*. The cauſe is either internall or externall: internall, as by a Carbuncle, Impoſtume, or Ulcer: externall, as by a wound made by a ſword, burn, fall, & the like. If this miſhap proceed by reaſon of a cicatrization, it is cureable, if ſo that the ſhort eye-lid be of an indifferent thickneſſe. But if it have bin from the firſt conformation, or by ſome other meanes, whereby much of the ſubſtance is loſt, as that which happens by burning and a carbuncle, then it is uncureable. For the cure, you ſhall uſe relaxing and emollient fomentations, then the skinne ſhall be divided above the whole ſcarre, in figure of an halfe moon, with the hornes looking downewards. Then the edges of the inciſion ſhall bee opened, and lint put into the middle therof, that ſo it may hinder the lips from joyning together againe. Then ſhall you apply a plaſter upon the lint, and ſo bind up the part with a fitting ligature that may ſomewhat preſſe upon the whole eye, leſt it ſhould lift it ſelfe ſomewhat upwards againe, and ſo returne into its ancient, but not naturall figure. But in cutting the skinne, you muſt take care that your inciſion harme not the griſtle; for if it be cut, the eie-lid falls downe, neither can it be afterwards lifted up. But now for the lower eye-lid: it is ſubject to ſundry diſeaſes, amongſt which there is one which anſwereth in proportion to that, which we late mentioned, which is, when as it is lifted upwards little or nothing, but hangs and gapes, and cannot bee joyned with the upper, and therefore it doth not cover the eye, which affect is familiar to old people; it is called *Ectropion*, and it may be helped by the means formerly delivered.

The cure.

Ectropion, or the turning up or out of the Eye-lid.

CHAP. VII.

Of the Chalazion, *or Haile-ſtone, and the* Hordeolum *or Barly-corne of the eye-lids.*

Paul. cap. 16. lib. 6.

THe *Chalazion* is a round and cleere pimple which growes upon the upper eie-lid, it is alſo moveable and may be ſtirred this way and that way with your fingers: the Latines call it *Grando*, for that it reſembles a Hail-ſtone. Another pimple not much unlike this growes ſomtimes upon the verges of the eye-lids above the place of the haires. It is termed *Hordeolum*, by reaſon of the ſimilitude it hath with a barly corne. The matter of theſe is contained in its proper ciſt or skin, and therefore is hardly brought to ſuppuration. At the firſt beginning it may be reſolved and diſcuſſed. But when as it is once growne and concrete into a plaſter or ſtone-like hardneſſe, it is ſcarce cureable. Wherefore it is beſt to performe

The cure.

performe the cure by opening them, that ſo the contained matter may flow, or bee preſſed forth. If the pimple or ſwelling bee ſmall, then thruſt it through with a needle and thread, and leave the thread therein of ſuch length that you may faſten the ends thereof with a little of the emplaſter called *Gratia Dei* like glew to the forehead, if it be on the upper eye-lid; or to the cheeks, if on the lower. You muſt draw through a freſh one every ſecond day, as is uſually done in chirurgicall ſetons. For thus at length the ſwelling will be deſtroyed and made plaine.

CHAP. VIII.

Of the Hydatis *or Fatneſſe of the Eye-lids.*

What *Hydatis* is.

THe *Hydatis* is a certaine fatty ſubſtance like a peece of fat ſeated and lying under the ſkinne of the upper eye-lid. It is a diſeaſe incident to children, who are of a more humid nature: wherefore it is a ſoft and looſe tumour making the whole eye-lid, which it poſſeſſeth, œdematous; ſo that, as if depreſſed with a weight, it cannot be lifted up. It hath its name, for that it hath as it were a bladder diſtended with a whayiſh humour, which kinde of fault is obſerved by *Galen* in the liver. *Com. ad aphor. 55. ſect. 7.* Thoſe, who are thus affected, have their eyes looke red, and flow with teares, neither can they behold the ſun, or endure the light. The cure. The cure is performed by cutting off the ſuperfluous ſubſtance, not hurting the neighbouring parts; and then preſently put ſome ſalt into the place whence it was taken out (unleſs the vehemency of paine hinder) that ſo the place may bee dryed and ſtrengthened, and the reſt of the matter (if any ſuch be) may be conſumed, and hindred from growing againe. Laſtly, you ſhall cover the whole eye with the white of an Egge diſſolved in roſe-water, or ſome other repercuſſive.

CHAP. IX.

Of the Eye-lids faſtened or glewed together.

SOmetimes it commeth to paſſe that the upper eye-lid is glewed or faſtened to the under, ſo that the eye cannot be opened, or ſo that the one of them may ſticke or bee faſtened to the white coat of the eye, or to the horny. *Paulus cap. 15. lib. 6.* This fault is ſometimes drawne from the firſt originall, that is, by the default of the forming faculty in the wombe (for thus many infants are born with their fingers faſtened together, with their fundaments, privities and eares unperforated) the eye in all other reſpects being well compoſed. The cauſe. The cauſe of this affect ſomtimes proceeds from a wound, otherwhiles from a burn, ſcald or impoſtumation, as the breaking of the ſmall pox. It is cured by putting in a fit inſtrument, & ſo opening them; but with ſuch moderation, that you touch not the horny coat, for otherwiſe it would fall out. The cure. Therefore you muſt put the end or point of your probe under the eye-lids, and ſo lifting them up (that you hurt not the ſubſtance of the eie) divide them with a crooked inciſion knife.

The inciſion made, let the white of an egge beaten with ſome roſe-water be put into the eye; let the eye-lids be kept open, yea let the patient himſelf be carefull that he often turne it upwards, and lift it up with his fingers, not onely that the medicine may bee applyed to the ulcer, but alſo that they may not grow together againe. In the night time let a little pledget dipped in water, and that either ſimple, or wherein ſome vitrioll hath bin diſſolved, bee laid thereon. For thus you ſhall hinder the eye-lids from joyning together againe. Then on the third day the parts or edges of the eie-lids ſhall be touched with waters drying without biting or acrimony, that ſo they may be cicatrized. But if the eye-lid adhere to the horny coate at the *pupilla* or apple of the eye, the patient will either bee quite blind, or very ill of ſight. For the ſcarre which enſues will hinder the ſhapes of things from entring to the cryſtalline humour, and the viſive ſpirits from paſſing forth to the objects. For prognoſtickes, you may learne out of *Celſus*, that this cure is ſubject to a relapſe, ſo that it may bee ſhunned neither by diligence nor induſtry, but that the eye-lid will alwayes adhere and cleave to the eye.

A diſeaſe ſubject to relapſe.

Chap. X.

Of the itching of the Eye-lids.

MAny have their Eye-lids itch vehemently by reaſon of ſalt phlegme, which often times excoriating and exulcerating the parts themſelves, yeelds a *ſanies*, which joynes together the eye-lids in the night time as if they were glewed together, and maks them watry and bleared. This affect doth ſo torment the patients, that it oft times makes them require the Phyſitians helpe. Wherefore generall medicines being premiſed, the Ulcers ſhall be waſhed with the following *Collyrium.* ℞. *aquæ mellis in balneo mariæ deſtillatæ* ℥iii. *ſacchari candi.* ʒi. *aloës lotæ & in pollinem redactæ* ʒß. *fiat collyrium.* Which if it doe no good, you may uſe this which followes. ℞. *Ung. Ægyptiac.* ʒi. *diſſolve in aquæ plantaginis quantitate ſufficienti.* Let the ulcerated eie-lids be touchd with a ſoft linnen rag dipped therin, but with care that none therof fall upon the eye. But when the patient goes to bed, let him cauſe them to be anointed with the following ointment, very effectuall in this caſe. ℞. *axungiæ porci et butyri recentis, an.* ℥ß. *tuth. præpar.* ʒß. *antimon. in aquæ euphraſiæ præparati,* ℈ii. *camphoræ gra.* iiii. *miſce, et in mortario plumbeo ducantur per tres horas, conflatum inde unguentum, ſervetur in pyxide plumbea.* Some commend and uſe certaine waters fit to cleanſe, dry, binde, ſtrengthen, and abſolutely free the eye-lids from itching and redneſſe; of which this is one.

A detergent *collyrium.*

℞. *aquæ euphrag. fæniculi, chelidon. an* ℥ß. *ſarcocal. nutritæ* ℈ii. *vitriol. rom.* ʒi. *miſceantur ſimul & bulliant unica ebullitione; poſtea coletur liquor, & ſervetur ad uſum dictum.* Or elſe. ℞. *aquæ roſ. & vini alb. boni an.* ℥iiii. *tuth. præpar. aloës an.* ʒi. *flor. æris* ℈ii. *camphor. gra.* ii. Let them bee boyled according to art, and kept in a glaſſe to waſh the eye-lids. Or elſe, ℞. *vini albi* ℔ß. *ſalis com.* ʒi. let them be put into a cleane barbars baſon and covered, and kept there five or ſix dayes, and bee ſtirred once a day, and let the eye-lids bee touched with this liquor. Some wiſh that the patients urine be kept all night in a barbers baſon, and ſo the patients eie-lids be waſhed therwith. Verily in this affect we muſt not feare the uſe of acride medicines, for I once ſaw a woman of fifty yeares of age, who waſhed her eye-lids when they itched with the ſharpeſt vinegar ſhe could get, and affirmed that ſhe found better ſucceſſe of this than of any other medicine. *Vigo* preſcribes a water whoſe efficacy above other medicines in this affect, hee ſaith, hath bin proved; and that it is to bee eſteemed more worth than gold, the deſcription thereof is thus. ℞. *aq. roſ. vini albi odoriferi mediocris vinoſitatis an.* ℥iiii. *myrobalan. citrini trit.* ʒiß. *thuris* ʒii. *bulliant omnia ſimul uſque ad conſumptionem tertiæ partis; deinde immediatè addantur floris æris* ℈ii. *camph. gr.* ii. Let the liquor be kept in a glaſſe well ſtopped for the foreſaid uſe.

You need not feare to uſe acride medicines in the itching of the eye-lids.

Lib. 2. cap. 4. tract. 3.

Chap. XI.

Of Lippitudo, *or Bleare-eyes.*

THere are many whoſe eyes are never dry, but alwaies flow with a thinne, acrid and hot humour, which cauſeth roughneſſe, and upon ſmall occaſions inflammations, blear or blood-ſhot eies, and at length alſo *Strabiſmus* or ſqinting. *Lippitudo* is nothing elſe but a certaine white filth flowing from the eyes, which oft times agglutinates or joynes together the eye-lids. This diſeaſe often troubles all the life time, and is to be cured by no remedy: in ſome it

What *lippitudo* is.

is cureable. Such as have this diſeaſe from their infancy, are not to be cured, for it remaines with them till their dying day. For large heads, and ſuch as are repleate with acride or much excrementitious phlegme, ſcarce yeeld to medicines. There is much difference whether the phlegme flow downe by the internall veſſels under the ſcull, or by the externall which are betweene the skull and the skin, or by both. For if the internall veines caſt forth this matter, it will be difficultly cured if it bee cured at all. But if the externall veſſels caſt it forth, that cure is not unprofitable, which having uſed medicines reſpecting the whole body, applyes aſtringent medicines to the ſhaved crown, as *Empl. contra rupturam*, which may ſtreighten the veines, and as it were ſuſpend the phlegme, uſeth cupping, and commands frictions to bee made towards the hinde part of the head, and laſtly, maketh a Seton in the necke. There are ſome who cauterize the toppe of the crowne with a hot iron, even to the bone, ſo that it may caſt a ſcaile, thus to divert and ſtay the defluxion. For locall medicines, a *Collyrium* made with a good quantity of roſewater, with a little vitrioll diſſolved therein, may ſerve for all.

A *Collyrium* of vitrioll to ſtay the defluxions of the eyes.

CHAP. XII.

Of the Ophthalmia, *or inflammation of the Eyes.*

What *Ophthalmia* is, and the cauſes thereof.

AN *Ophthalmia* is an inflammation of the coate *Adnata* and conſequently of the whole eye, being troubleſome by the heate, redneſſe, beating, renitency, and laſtly paine. It hath its originall either by ſome primitive cauſe or occaſion, as a fall, ſtroake, duſt, or ſmall ſand flying into the eyes. For the eye is a ſmooth part, ſo that it is eaſily offended by rough things, as ſaith *Hippocrates, lib. de carnibus*. Or by an antecedent cauſe, as a defluxion falling upon the eyes. The ſignes follow the nature of the materiall cauſe, for from blood eſpecially cholerike and thin, it is full of heat, redneſſe and paine; from the ſame allayed with phlegme all of them are more remiſſe. But if a heavineſſe poſſeſs the whole head, the original of the diſeaſe proceeds therfrom. But if a hot pain trouble the forehead, the diſeaſe may be thought to proceed from ſome hot diſtemper of the *Dura mater*, or the *pericranium*; but if in the very time of the raging of the diſeaſe the patient vomit, the matter of the diſeaſe proceeds from the ſtomacke. But from whence ſoever it commeth there is ſcarce that paine of any part of the body, which may be compared to the paine of the inflamed eyes. Verily the greatneſſe of the inflammation hath forced the eyes out of their orbe, and broken them aſunder in divers. Therefore there is no part of Phyſicke more blazed abroad than for ſore eyes. For the cure, the Surgeon ſhall conſider and intend three things, diet, the evacuation of the antecedent and conjunct cauſe, and the overcomming it by topicke remedies. The diet ſhall bee moderate, eſchewing all things that may fill the head with vapours; and thoſe things uſed that by aſtriction may ſtrengthen the orifice of the ventricle, and prohibite the vapours from flying up to the head; the patient ſhall bee forbidden the uſe of wine, unleſſe peradventure the diſeaſe may proceed from a groſſe and viſcide humour, as *Galen* delivers it. The evacuation of the matter flowing into the eye, ſhall bee performed by purging medicines, phlebotomy in the arm, cupping the ſhoulders and neck with ſcarification, and without: and laſtly, by frictions, as the Phyſitian that hath undertaken the cure ſhall thinke it fit. *Galen* after univerſall remedies for old inflammations of the eyes, commends the opening of the veines and arteryes in the forehead and temples, becauſe for the moſt part the veſſels therabouts diſtended with acride, hot and vaporous blood, cauſe great & vehement paines in the eye.

Signes.

The cure.

Com. ad aphor. 31. ſect. 6.

Lib. 13. meth. cap. ult.

For the impugning of the conjunct cauſe, divers topick medicines ſhall be applyed, according to the four ſundry times or ſeaſons that every phlegmon uſually hath. For in the beginning, when as the acride matter flowes downe with much violence, repercuſſives doe much conduce: and tempred with reſolving medicines, are good alſo in the encreaſe. ℞. *aq. roſ. et plantag. an.* ʒß. *mucagin. gum. Tragacanth.* ʒii. *al-*

bum

A repercuſſive medicine.

Aſtringent emplaſters.

An anodine cataplaſme.

The efficacy of Bathes in pains of the eyes. *Ad aphor. ſect. 7.*

Detergent *Collyria.*

bum.ovi quod ſufficit, fiat collyrium, let it bee dropped warme into the eye, and let a double cloth dipped in the ſame *collyrium* bee put upon it. Or, ℞.*mucag. ſem. pſil. & cydon. extractæ in aq. plant. an.* ℥ß.*aq. ſolan. & lactis muliebris, an.* ℥i.*trochiſc. alb. rha.*℈i. *fiat collyrium*, uſe this like the former. The veins of the temples may be ſtreightened by the following medicine. ℞.*bol. arm. ſang. drac. & maſt. an.* ʒi.ß.*alb. ovi, aquæ roſ. & acet. an.* ℥i. *tereb. lot. & ol. cidon. an.* ℥i.ß.*fiat defenſivum.* You may alſo uſe *Ung. de Bolo, empl. diacal.* or *contra rupturam* diſſolved in oyle of myrtles, and a little vinegar. But if the bitterneſſe of the paine be intolerable, the following cataplaſme ſhall be applyed. ℞.*medul. pomor. ſub. ciner. coctorum.* ℥iii.*lactis muliebris* ℥ß. let it be applyed to the eye, the formerly preſcribed *collyrium* being firſt dropped in. Or, ℞.*mucag. ſem. pſil. & cidon. an.* ℥ß.*micæ panis albi in lacte infuſi,* ℥ii.*aquæ roſ.* ℥ß.*fiat cataplaſma.* The bloud of a turtle Dove, Pigeon or Hen drawne by opening a veine under the wings, dropped into the eye, aſſwageth paine. Baths are not onely anodine, but alſo ſtay the defluxion by diverting the matter thereof by ſweats; therefore *Galen* much commends them in ſuch defluxions of the eyes as come by fits. In the ſtate when as the paine is either quite taken away or aſſwaged, you may uſe the following medicines. ℞.*ſarcocol. in lacte muliebri nutritæ,* ʒi. *aloës lotæ in aq. roſar.* ℈ii. *trochiſ. alb. rha.* ʒß.*ſacchar cand.* ʒii.*aquæ roſ.* ℥iii. *fiat collyrium.* Or, ℞.*ſem. fæniculi, & fænug. an.* ʒii.*flo. chamæ. & melil. an.* m. ß. *coquantur in aq. com. ad* ℥iii. *colatura adde tuthiæ præp. & ſarcoc. nutritæ in lacte muliebri. an.* ʒi. ß.*ſacchari cand.* ℥ß. *fiat collyrium ut artis eſt.* In the declination the eye ſhall be fomented with a carminative decoction, and then this *collyrium* dropped thereinto. ℞.*ſarcoc. nutritæ* ʒii.*aloës & myrrh. an.* ʒi.*aq. roſ. & euphrag. an.* ℥ii.*fiat collyrium, ut artis eſt.*

Chap. XIII.

Of the Proptoſis, *that is, the falling or ſtarting forth of the eye, and of the* Phthiſis, *and* Chemoſis *of the ſame.*

The cauſe.

The cure.

THe Greekes call that affect *Proptoſis,* the Latines *procidentia* or *Exitus oculi,* when as the eye ſtands, and is caſt out of the orbe by the occaſion of a matter filling and lifting up the eye into a greater bigneſſe, and largeneſſe of ſubſtance. The cauſe of this diſeaſe is ſometimes externall, as by too violent ſtrayning to vomit, by hard labour in child-birth, by exceſſive and wondrous violent ſhouting, or crying out. It ſometimes happeneth that a great and cruell paine of the head, or the too ſtrait binding of the forehead and temples for the eaſing thereof, or the palſie of the muſcles of the eye, give beginning to this diſeaſe. Certainely ſometimes the eye is ſo much diſtended by the defluxion of humors, that it breakes inſunder, and the humours thereof are ſhed, and blindeneſſe enſues thereof, as I remember befell the ſiſter of *Lewis de Billy* merchant, dwelling at Paris near S. *Michael*'s bridg. The cure ſhall be diverſified according to the cauſes. Therefore univerſall medicines being premiſed, cupping glaſſes ſhalbe applyed to the originall of the ſpinall marrow, and the ſhoulders; as alſo cauteries, or Setons: the eye ſhall be preſſed or held downe with clothes doubled and ſteeped in an aſtringent decoction made of the juice of *Acacia,* red roſes, the leaves of poppy, henbane, roſes and pomegranate pills: of which things poultiſſes may bee made by addition of barly meale and the like.

The *Atrophia* of the eye.

The *Phthiſis* thereof. *Lib. 3. cap. 22.*

There is ſometimes to bee ſeene in the eye an affect contrary to this, and it is termed *Atrophia.* By this the whole ſubſtance of the eye growes lanke and decayes, and the apple it ſelfe becomes much leſſe. But if the conſumption and emaciation take hold of the pupill onely, the Greekes, by a peculiar name and different from the generall, terme it a *Phthiſis,* as *Paulus* teacheth. Contrary cauſes ſhall bee oppoſed to each affect; hot and attractive fomentations ſhall be applyed; frictions ſhall be uſed in the neighbouring parts, and laſtly all things ſhall be applyed which may without danger be uſed to attract the bloud and ſpirits into the parts.

There is another affect of the eye, of affinity to the *Proptoſis,* which by the Greeks

is

The *Chemoſis.* *Paulus li.3.cap.2.*

is termed *Chemoſis*. Now this is nothing elſe than when both the eye-lids are turned up by a great inflammation, ſo that they can ſcarce cover the eyes, and the white of the eye is lifted much higher up than the blacke. Sometimes the *Adnata* changing his wont, looketh red; beſides alſo, this affect may take its originall from externall cauſes, as a wound, contuſion and the like. But according to the variety of the cauſes, and the condition of the preſent affect fixed and remaining in the part, divers remedies ſhall be appointed.

CHAP. XIV.

Of the Ungula, or Web.

THE *Ungula, Pterygion* or Web is the growth of a certaine fibrous and membranous fleſh upon the upper coate of the eye called *Adnata*, ariſing more frequently in the bigger, but ſometimes in the leſſer corner towards the temples. When it is neglected, it covers not onely the *Adnata*, but alſo ſome portion of the *Cornea*, and comming to the pupill it ſelfe hurts the ſight thereof. Such a Web ſometimes adheres not at all to the *Adnata*, but is onely ſtretched over it from the corners of the eye, ſo that you may thruſt a probe betweene it and the *Adnata*: it is of ſeverall colours, ſomewhiles red, ſomewhiles yellow, ſomewhiles duskiſh, & otherwhiles white. It hath its originall either from externall cauſes, as a blow, fall, and the like; or from internall, as the defluxion of humours into the eyes. The *Ungula* which is inveterate, and that hath acquired much thickneſſe and breadth, and beſides doth difficultly adhere to the *Adnata*, is difficultly taken away, neither may it bee helped by medicines whereby ſcars in the eyes are extenuated. But that which covereth the whole pupill muſt not bee touched by the Surgeon, for being cut away, the ſcar which is left by its denſity hindereth the entrance of objects to the criſtalline humour, and the egreſſe of the animall ſpirit to them. But oftentimes it is accompanied with an inflammation of the eyes, a burning itching, weeping defluxion, and ſwelling of the eye-lids. That the cure may rightly and happily proceed, hee muſt firſt uſe a ſpare diet, purging medicines ſhall be given, and bloud taken away by opening a veine, eſpecially, if there be great inflammation. For particular remedies, this excreſcence ſhall be eaten away, or at leaſt kept from growth by dropping into the eye *collyrium* of vitrioll deſcribed in wounds of the eyes. But if that wee profit nothing by this meanes, it remaineth, that wee take it away with the hand after the following manner.

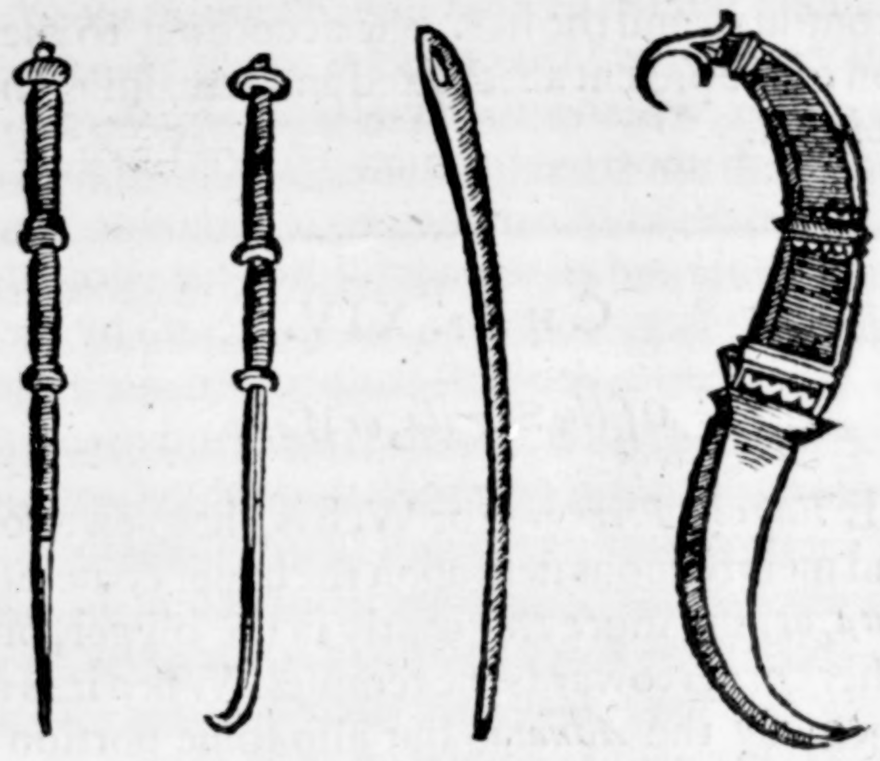
What Web curable, and what uncurable.

The cure.

The cutting of the Web.

You ſhall ſet the patient upon a forme or ſtoole, and make him leane much backe, and be ſo held firmely, that he may not fall nor ſtirre; then muſt you open his ſore eye, putting therein the *ſpeculum oculi* formerly deſcribed in treating of the wounds of this part, and then muſt you lift up the Web it ſelfe with a ſharpe little hook, with the point turned a little in, and put under the midſt of the Web; when you have lifted it a little up, thruſt a needle threaded with a ſmoth threed between it & the *Adnata*, then taking hold of the hooke, and the two ends of the threed drawne through with the needle, and lifting up the Web by them, you ſhall gently begin to ſeparate it from the ſubſtance of the eye lying there-under, beginning at the originall thereof with a crooked inciſion knife, and ſo proſecute it even to the end, yet ſo as you hurt no part of the *Adnata*, nor *Cornea*.

The figures of little hookes, a needle, and crooked inciſion knife.



Little Hookes. *A needle.* *A crooked inciſion knife.*

Then muſt it bee cut off with a paire ſiſſers, and the white of an egge beaten with ſome Roſe-water laid thereon, and often renewed. Afterwards the eye muſt every day be opened, leſt comming to cicatrization, the eye-lids ſhall be glewed together in that part whereas the Web is taken away, which alſo ſhall bee hindred by putting of common ſalte, ſage and cummin ſeeds into the eye, being firſt champed and chawed in the mouth. There are ſome who in ſtead of the crooked knife ſeparate the Web from the *Adnata* with a horſes haire, others do it with a gooſe quill made ready for the ſame purpoſe, taking heed that they hurt not the caruncle at the corner by the noſe, for it will follow if that you draw the Web away too violently; and if it be cut, there wil remain a hole, through which during the reſt of the life a weeping humour will continually flow, a diſeaſe by the Greekes termed *Rhyas*. If after the cutting, there be fear of inflammation, linnen rags moyſtned in repelling medicines, formerly preſcribed in wounds of the eye, ſhall bee layd thereupon.

CHAP. XV.

Of the Ægilops, fiſtula lachrimoſa, *or weeping Fiſtula of the eye.*

The uſe of the glandule at the greater corner of the eye.

The differences.

AT the greater corner of the eye there is a glandule, made for the receiving and contayning the moyſture which ſerveth for the lubricating and humecting the eye, leaſt it ſhould dry by continuall motion. This Glandule ſometimes by a ſanguine or pituitous defluxion falling violently from the brain, ſwels, impoſtumates & ulcerates with an ulcer, not ſeldome degenerating into a fiſtula, ſo that in ſucceſſe of time it rotteth the bone that lyeth under it: of ſuch fiſtulaes, ſome are open outwardly, and theſe uſually have their originall from a phlegmon; other ſome are inwardly, and thoſe are ſuch as at firſt ſwelled by the defluxion or congeſtion of a phlegmaticke matter, ſo that there appeareth no hole outwardly, but onely a tumor of the bigneſſe of a peaſe; this tumor being preſſed, floweth with a ſanious, ſerous and red, or otherwiſe with a white and viſcide matter, and that either by the corner of the eye, or by the inſide of the noſe. Some have this matter flowing continually, others have it onely monethly, which is proper alſo to ſome fiſtulaes. Such weeping fiſtulaes if they become old, cauſe an *Atrophia* of the eye, & ſometimes blindneſſe, & a ſtinking breath. Therefore wee muſt diligently and ſpeedily by phiſicall and chirurgicall meanes reſiſt the breeding diſeaſe. Wherefore, having uſed generall medicines, we muſt come to particulars. Therefore if the ulcer be not ſufficiently wide, it ſhall bee inlarged by putting tents of ſpunge

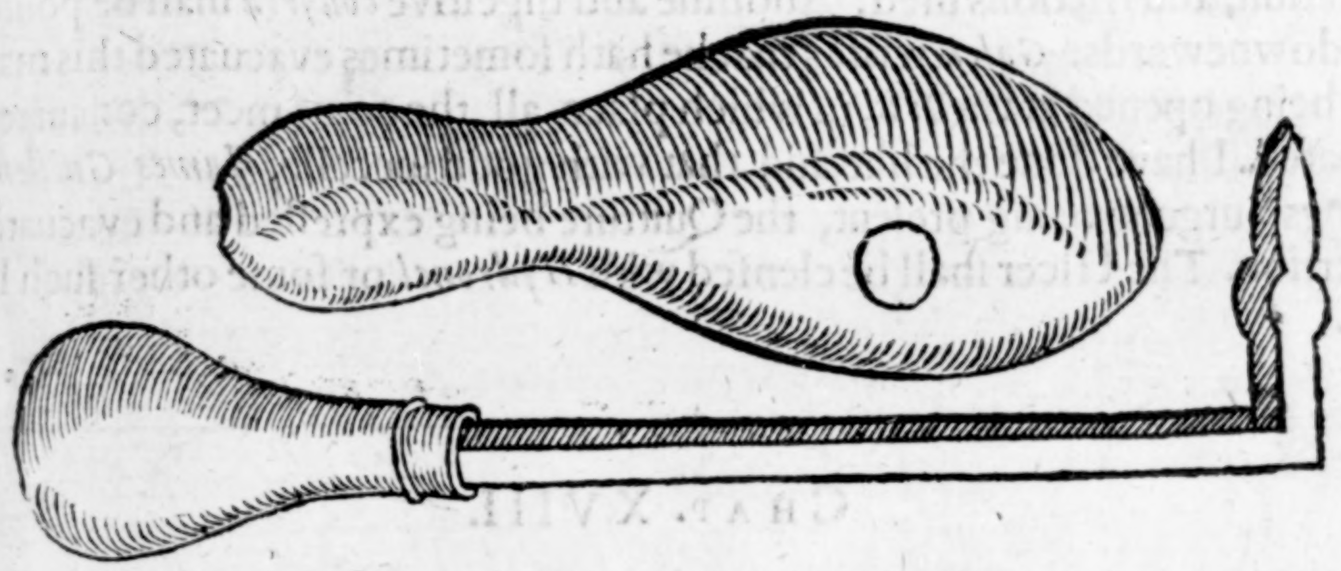
Periodicall and Typicall Fiſtulaes.

therein. The fleſh of the Glandule encreaſing more than is fit, ſhall be corrected by putting therein the cathæreticke pouders of Mercury, calcined vitrioll, or ſome *aqua fortis*, or oyle of vitrioll, and laſtly, by a potentiall cautery. If you cannot prevaile by theſe meanes, and that the bone begins to rot, and the patient bee ſtout hearted, then uſe an actuall cautery whoſe uſe is far more effectuall, ready, certaine and excellent than a potentiall cautery, as I have tryed in many with happy ſucceſſe. In my opinion it makes no matter, whether the cautery be of gold, ſilver or iron; for the efficacy it hath, proceedeth not from the matter, but from the fire. Yet if wee muſt religiouſly obſerve and make choiſe of mettals, I had rather have it of Iron, as that which hath a far more drying and aſtringent faculty than gold, for that the element of earth beareth the chiefe ſway thererein, as appeareth by the waters which flow through iron mines. Wherefore you ſhall cauſe to be made a triangular Iron, ſharpe at the end, that it may the more ſpeedily penetrate. And then the ſound eye and adjacent parts being well covered and defended, and the patients head firmely holden in ones hands, leſt the patient being frighted, ſtirre himſelfe in the very inſtant of the operation. But a plate of iron ſomewhat depreſſed in the midſt, for the cavity of the greater corner, ſhall be applyed and fitted to the pained eye. This plate ſhall be perforated that the hot Iron may paſſe thereby to the fiſtula lying thereunder, and ſo may onely touch that which is to be cauterized.

The cure.

The efficacy of an actuall cautery.

The figure of a cautery, and a plate with a hole therein.



After the bone is burnt with the cautery, a *collyrium* made of the whites of egges beaten in plantaine and nightſhade waters muſt be poured into the hole it ſelfe, the eye and all the neighbouring parts; but the patient ſhall bee layd in bed, with his head ſomewhat high, and the *collyrium* ſhall be renued as often and as ſoone as you ſhall perceive it to grow dry. Then the fall of the Eſchar ſhall be procured by annointing it with freſh butter; when it is fallen away, the ulcer ſhall be cleanſed, filled with fleſh, and laſtly cicatrized.

Things to be done after the cauterizing.

Chap. XVI.

Of the Staphiloma, *or grape-like ſwelling.*

STaphiloma is the ſwelling of the horney and grape-like coat, bred through the occaſion of an humor flowing downe upon the eye, or by an ulcer, the horney coat being relaxed, or thruſt forth by the violence of the puſtule generated beneath. It in ſhape reſembleth a grape, whence the Greekes ſtile it *Staphyloma*. This tumor is ſometimes blackiſh, otherwhiles whitiſh. For if the horney coat bee ulcerated and fretted in ſunder, ſo that the grapie coat ſhew it ſelfe, and fall through the ulcer, then the *Staphyloma* will looke blacke like a ripe grape, for the utter part of the *Uvea* is blackiſh. But if the *Cornea* bee onely relaxed and not broken, then the ſwelling appeares of a whitiſh colour like an unripe grape. The Ancients have made many kindes or differences thereof. For if it bee but a ſmall hole of the broken

What a *Staphiloma* is, and the cauſes thereof.

Paulus and *Aetius*.

broken *Cornea* by which the *Uvea* ſheweth or thruſteth forth its ſelfe, they then termed it *Myocephalon*, that is, like the head of a fly. But if the hole were large, and alſo callous, they called it *Clavus*, or a naile; If it were yet larger, then they termed it *Acinus*, or a grape. But in what ſhape or figure ſoever this diſeaſe ſhall happen, it bringeth two diſcommodities, the one of blindneſſe, the other of deformity. Wherefore here is no place for ſurgery to reſtore the ſight, which is already loſt, but onely to amend the deformity of the eie; which is by cutting off that which is prominent. But you muſt take heed that you cut away no more than is fit, for ſo there would be danger of pouring out the humors of the eye.

Every *Staphiloma* infers incurable blindneſs.

Chap. XVII.

Of the Hypopyon, *that is, the ſuppurate or putrefied eye.*

The cauſe.

Pus, or Quitture is ſometimes gathered between the horny and grapy coate from an internall, or externall cauſe; From an internall, as by a great defluxion, and oft times after an inflammation, but externally, by a ſtroake, through which occaſion a veine being opened hath poured forth blood thither, which may preſently be turned into Quitture. For the cure, univerſall remedies being premiſed, cupping-glaſſes ſhall bee applied, with ſcarification, and frictions uſed. Anodine and digeſtive *collyria* ſhall be poured from above downewards. *Galen* writes that he hath ſometimes evacuated this matter, the *Cornea* being opened at the *Iris*, in which place all the coats meet, concurre and are terminated. I have done the like, and that with good ſucceſſe, *James Guillemeau* the the Kings Surgeon being preſent, the Quitture being expreſſed and evacuated after the apertion. The Ulcer ſhall be clenſed with *Hydromel*, or ſome other ſuch like medicine.

Lib. 14. method. cap. ult.

Chap. XVIII.

Of the Mydriaſis, *or dilatation of the pupill of the eye.*

The cauſe.

M*ydriaſis* is the dilatation of the pupill of the eye; and this happeneth either by nature or chance: the former proceedeth from the default of the firſt conformation, neither is it curable; but the other is of two ſorts; for it is either from an internall cauſe, the off-ſpring of an humour flowing downe from the braine, wherefore Phiſicall meanes muſt bee uſed for the cure thereof. Now that which commeth by any externall occaſion, as a blow, fall or contuſion upon the eye, muſt bee cured by preſently applying repercuſſive and anodyne medicines; the defluxion muſt be hindred by diet skilfully appointed, phlebotomie, cupping, ſcarification, frictions, and other remedies which may ſeeme convenient. Then muſt you come to reſolving medicines; as the bloud of a Turtle Dove, Pigeon, or Chicken reeking hot out of the veine, being poured upon the eye and the neighbouring parts. Then this following cataplaſme ſhall be applyed thereto. ℞. *farinæ fabar. & hordei an.* ℥iiii. *ol. roſar. & myrtillor. an.* ℥i. ß. *pul. ireos flor.* ʒii. *cum ſapa fiat cataplaſma.* You may alſo uſe the following fomentation. ℞. *roſar. rub. & myrtill. an.* m. i. *florum melil. & chamæm. an.* p. i. *nucum cupreſſ.* ℥i. *vini auſteri* ℔. ß. *aq. roſar. & plantag. an.* ℥iii. make a decoction of them all for a fomentation to be uſed with a ſponge.

The cure.

A digeſting Cataplaſme.

Chap.

CHAP. XIX.

Of a Cataract.

A Cataract.

A Cataract is called alſo by the Greeks *Hypochyma*, by the Latines, *ſuffuſio*. Howſoever you terme it, it is nothing elſe but the concretion of an humour into a certaine thin skin under the horny coat, juſt againſt the apple or pupill, and as it were ſwimming upon the watery humour; and whereas the place ought to bee empty, oppoſing it ſelfe to the internall faculty of ſeeing, whereby it differeth from ſpots and ſcars growing upon the horny coate and *Adnata*. It ſometimes covereth the whole pupill, otherwhiles but the one halfe thereof, and ſomwhiles but a ſmall portion thereof. According to this variety the ſight is either quite loſt, weake, or ſomewhat depraved; becauſe the animall viſive ſpirit cannot in its entire ſubſtance paſſe through the denſity thereof. The defluxion of the humour whence it proceeds, is either cauſed by an external occaſion, as a ſtroake, fall, or by the heat or coldneſſe of the encompaſſing ayre, troubleſome to the head and eyes; or elſe it is by an internall meanes, as the multitude, or elſe the acride hot and thin quality of the humours. This diſeaſe alſo ſometimes taketh its originall from groſſe and fumid vapours ſent from a crude ſtomacke, or from vaporous meats or drinks, up to the braine, and ſo it falleth into the eyes, where by the coldneſſe, ſtraitneſſe and tarrying in the place, they turn into moyſture, and at length into that concretion or filme which wee ſee: The ſigns may be eaſily drawne, from that we have already delivered. For when the cataract is formed and ripe, it reſembleth a certain thin membrane ſpred over the pupill, and appeareth of a different colour, according to the variety of the humour whereof it conſiſteth, one while white, another while blacke, blew, aſh-coloured, livid, citrine, greene. It ſometimes reſembleth quickſilver, which is very trembling and fugitive, more than the reſt. At the firſt when it beginneth to breed they ſeeme to ſee many things, as flyes flying up and downe, haires, nets, and the like, as if they were careleſly toſſed up and down before their eyes: ſometimes every thing appeareth two, and ſomewhiles leſſe than they are; becauſe the viſive ſpirit is hindered from paſſing to the objects by the denſity of the skin, like as a cloud ſhadowing the light of the Sun. Whence it is that the Patients are duller ſighted about noone, and ſurer and quicker ſighted in the morning and evening, for that the little viſive ſpirit diffuſed through the aire, is diſperſed by the greater light, but contracted by the leſſe. Now if this filme cover halfe the pupill, then all things ſhew but by halfes; but if the midſt thereof bee covered and as it were the center of the Chriſtalline humour, then they ſeeme as if they had holes or windowes: but if it cover it all, then can hee ſee nothing at all, but onely the ſhadowes of viſible bodies, and of the Sun, Moone, Stars, lighted candles, and the like luminous things, and that but confuſedly and as by conjecture.

The differences.

Cauſes.

Signes.

CHAP. XX.

The phyſicall cure of a beginning Cataract.

Diet for ſuch as are troubled with a Cataract.

A Beginning Cataract is hindred from growing and concretion by diet conveniently and artificially preſcribed, by the abſtinence from wine, eſpecially more ſtrong and vaporous, and forbearing the uſe of meates, which yeeld a flegmaticke juice and vaporous, as peaſe, beanes, turneps, cheſnuts, and laſtly all ſuch things as have the faculty of ſtirring up the humours, and cauſing defluxion in the body, ſuch as are all ſalt & ſpiced meats, as alſo garlike, onions, muſtard. The immoderate uſe of venery hurts more than all the reſt, for that it more violently exagitates the whole body, weakens the braine and head, and begets crude humours.

Bread ſeaſoned with fennell ſeeds.

Let his bread be ſeaſoned with ſome fennell ſeeds, for it is thought to have a faculty of helping the ſight, and clearing the eyes, and diſſipating the miſty vapours in the ſtomacke before they can aſcend to the braine. Wherefore by the ſame reaſon it is good to uſe marmelade of quinces, conſerve of roſes, and common drige powder, or any ſuch like compoſed of things good to break wind, or corroborate the ventricle. Phlebotomie and purging, if they be requiſite, ſhall be fitly appointed: Ventoſes ſhall be applyed to the ſhoulders and necke; the phlegmaticke matter ſhall be diverted and evacuated by the mouth with uſing maſticatories in the morning. There be ſome which believe that a beginning cataract may be diſſipated and diſcuſſed by often rubbing the eye-lids with the fingers, and in like ſort by the often and earneſt beholding of the Starres, and the Moone when it is at the full, looking-glaſſes, diamonds, and all other ſuch like bright ſhining things. I beleeve that by beames plentifully and ſuddenly brought and diffuſed over the eye, directly oppoſite againſt ſome bright ſhining thing, it may ſeeme to have a penetrating, dividing, diſſolving, as alſo a conſuming and drying faculty. Beſides, alſo the hot breath of him who holdeth in his mouth, and chaweth fennell-ſeeds, aniſeeds, coriander-ſeeds, nutmeg, cinamon, cloves, and the like, hath a great faculty, the eyes being firſt gently rubbed with the finger, it being breathed in, neare at hand and often received, to heat, attenuate, reſolve, digeſt, and diffuſe the humour which is ready to concrete. Moreover, this *collyrium* of *John Vigo* is thought very powerfull to cleare the eyes, ſtrengthen the ſight, hinder ſuffuſions, and diſcuſſe them if at any time they concrete and beginne to gather. ℞. *hepatis hircini ſani & recentis lib.* ii. *calami aromatici & mellis an.* ℥ß. *ſucci rutæ*, ʒiii. *aquæ chelidoniæ, fæniculi, verbeniæ euphoſiæ, an.* ʒiii. *piperis longi, nucis moſchatæ, caryophyllorum an.* ʒii. *croci* ℈i. *floris roriſmarini aliquantum contriti*, m. ß. *ſarcocollæ, aloës hepaticæ, an.* ʒiii. *fellis raiæ, leporis & perdicis, an.* ℥i. *terantur omnia, tritiſque adde ſacchari albi* ℥ii. *mellis roſati* ʒvi. *conjiciantur in alembicum vitreum & diſtillentur in balneo Mariæ*; Let this diſtilled liquor bee often dropped into the eyes. But if you prevaile nothing by all theſe medicines, and that the cloudy and heaped up humour doth daily encreaſe and thicken, then muſt you abſtaine from remedies, and expect untill it bee no more heaped up, but thickned, yea untill it ſeeme to be growne ſomewhat hard. For ſo at length it may bee couched with a needle; otherwiſe if this ſame skin ſhall not be ripe, but more tender than is fitting, when you ſhall come to the operation, it will be broken and thruſt through with the needle, and not couched. On the contrary, if it bee too hard, it will reſiſt the needle; neither will it ſuffer it ſelfe to bee eaſily couched. Wherefore it is requiſite that the Surgeon know when it is ripe, and he muſt diligently obſerve the ſignes whereby he may diſcerne a ripe Cataract from an unripe; and that which is cureable, from that which is uncurable. For that only which is ripe and curable is to be couched; that which is unripe, that is, ſuch an one as is more tender, and as it were crude, and that which is more hard and denſe, and laſtly, that which is uncureable muſt not bee attempted at all.

How bright ſhining things may diſſipate a beginning Cataract.

A *Collyrium* diſſipating a beginning Cataract.

A Cataract muſt not be couched unleſs it be ripe.

Chap. XXI.

By what ſignes ripe and curable cataracts may bee diſcerned from unripe and uncurable ones.

If the ſound eye being ſhut, the pupill of the ſore or ſuffuſed eye, after it ſhall be rubbed with your thumbe, bee preſently dilated and diffuſed, and with the like celerity returne into the place, figure, colour and ſtate, it is thought by ſome to ſhew a ripe and confirmed cataract. But an unripe and not to bee couched, if the pupill remaine dilated and diffuſed for a long while after. But it is a common ſigne of a ripe, as alſo more denſe and conſequently uncurable ſuffuſion, to bee able to ſee nor diſtinguiſh no viſible thing beſide light and brightneſſe; for to diſcerne other objects ſheweth that it is not yet ripe. Therefore the ſound eye being ſhut and preſſed, the pupill of the other rubbed with your thumbe, is dilated, enlarged, ſwelleth and is more diffuſed; the viſive ſpirits by this compreſſion being as it were forced from the ſound into the ſore eye. But theſe following cataracts are judged uncurable, that is, ſuch as are great, ſuch as when the eye-lid is rubbed are nothing dilated or diffuſed, whoſe pupill becommeth no broader by this rubbing: for hence you may gather that the ſtopping or obſtruction is in the opticke nerve, ſo that how cunningly and well ſoever the cataract bee couched, yet will the Patient continue blind; you ſhall do no more good in couching a cataract, which is in an eye conſumed and waſted with a *Phthiſis*. Alſo that cataract is uncurable which is occaſioned by a moſt grievous diſeaſe, to wit, by moſt bitter and cruell paines of the head, or by a violent blow. Such as are of a plaiſter-like, green, blacke, livid, citrine and quickſilver-like colour, are uſually uncurable. On the contrary, ſuch as are of a Cheſnut colour, or of a skye or ſea-water colour, with ſome little whitneſſe, yeeld great hope of a happy and ſucceſſefull cure.

Uncurable Cataracts.

Curable Cataracts.

Chap. XXII.

Of the couching a Cataract.

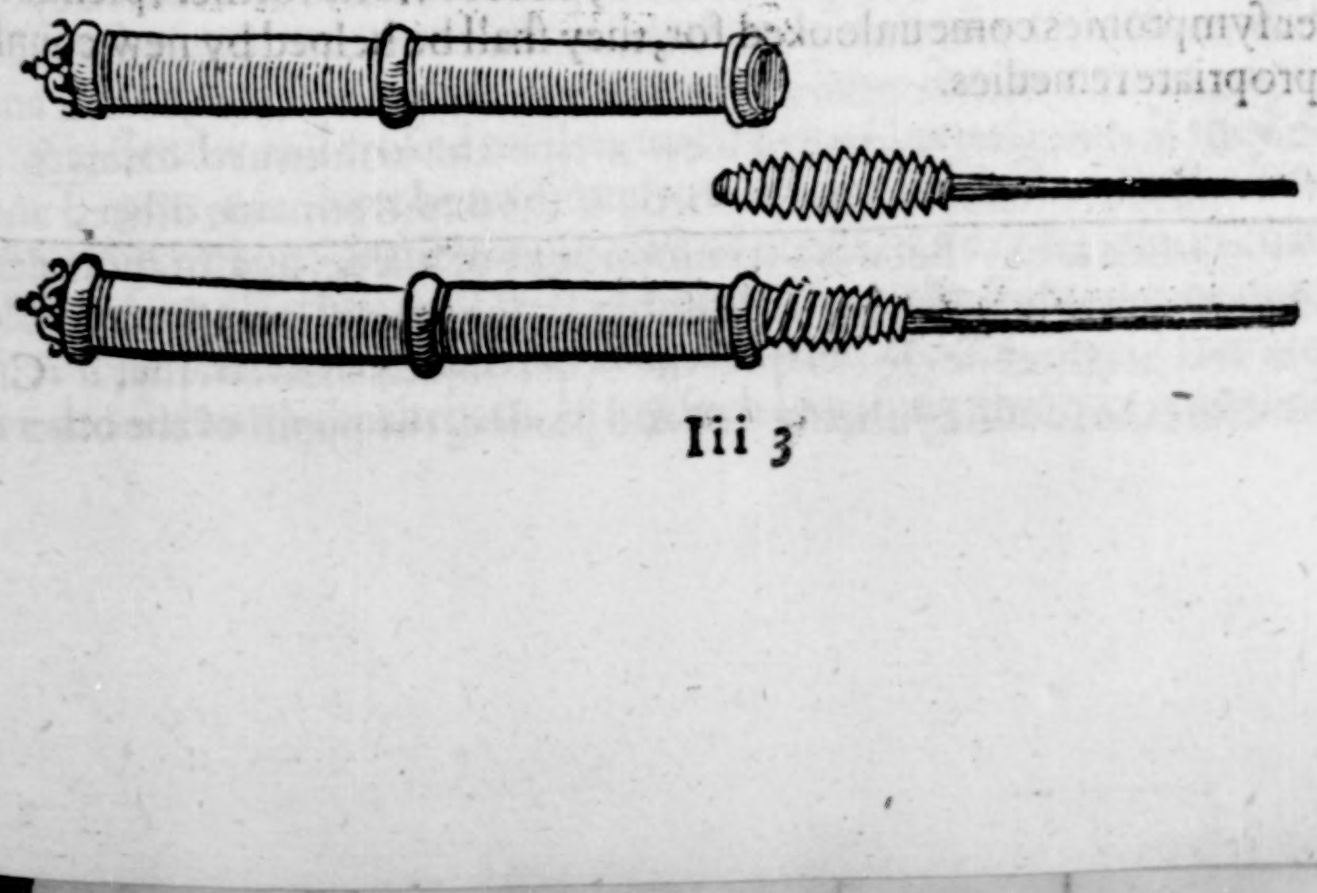
After you ſhal know by the forementioned ſignes, that the Cataract is curable, it remains that you attempt the couching thereof, but ſo, that there be nothing which may hinder. For if the paine of the head, cough, nauſeouſnes or vomiting at that time trouble the patient, you ſhal then beſtow your labour in vaine: Wherefore you muſt expect untill theſe ſymptomes be gone. Then make choice of a ſeaſon fitting for that purpoſe, that is, in the decreaſe of the moon, when the aire is not troubled with thunder nor lightening, and when as the Sunne is not in Aries, becauſe that ſigne hath dominion over the head. Then let the Surgeon conſult a Phyſitian whether purging or bloud-letting be convenient for the Patient, ſo to reſiſt plethoricke ſymptomes, otherwaies ready to yeeld matter for relapſe. Two dayes after you muſt make choice of a place furniſhed with indifferent or competent light, and the Patient being faſting ſhall be placed in a ſtrait chaire, ſo that the light may not fall with the beames directly upon him, but ſidewiſe. The eye which ſhall bee cured muſt bee made more ſteddy, by laying and binding wooll upon the other: Then the Surgeon ſhall ſeate and place himſelfe directly againſt the Patient upon a ſeat ſomewhat higher, and bidding the Patient put his hands downe to his girdle, he ſhall hold the patients legges betweene his knees. One ſhall ſtand at the Patients backe who ſhall hold his head and keepe it from ſtirring; for by a little ſtirring hee may loſe his ſight for ever. Then muſt you prepare and make ready your needle, and thruſt it often into ſome ſtrong thicke cloth, that it may bee as it were ſmoothe by this motion, and for the performance of the worke in hand with the leſſe paine ſomewhat warmed. It muſt bee made of iron or ſteele, and not of gold or ſilver, it muſt be alſo flatted on the ſides, and ſharpe pointed, that ſo it may the better pierce into the eye, and wholly couch the Cataract once taken hold of; and leſt it ſhould ſlip in the Surgeons hand, and be leſſe ſteddy, it ſhall bee put into a handle, as you may ſee by the following figure.

When to couch a Cataract.

The place.

The needle.

A needle inſerted in a handle for the couching of Cataracts.



All things being thus in a readineſſe, you muſt bid the patient to turne the ſight of his eye towards his noſe, and the needle muſt be boldly thruſt (for it is received in a place that is voyde, and onely filled with ſpirits) directly by the coat *Adnata*, in the middle ſpace between the leſſer corner & the horny coat, juſt againſt the midſt of the Cataract, yet ſo, as that you hurt no vein of the *Adnata*, & then by ſtirring it as it were diverſly untill it come to the midſt of the pupill and ſuffuſion. When it is come thither, the needle muſt bee inclined from above downewards to the ſuffuſion, and there to be ſtirred gently untill by little and little it couch or bring downe the Cataract as whole as may be beneath the compaſſe of the pupill; let him ſtill follow it though couched with his needle, and ſomewhat violently depreſſe, and keep it down for ſome ſhort ſpace, that ſo it may reſt and ſtay in that lower place whether it is depreſſed. The Surgeon ſhall try whether it firmely remaine there or no, bidding the patient preſently to move his eye; For if it remaine conſtantly ſo, and doe not returne againe, the cure is perfect. Then muſt the needle be lifted up by little and little, neither muſt it preſently be taken forth, that if the Cataract ſhould beare up, or riſe againe, that it might againe, and ſo often (whilſt the worke is yet hot, and all things in a readineſſe) be couched towards the leſſer corner, untill it be fully and ſurely hid. Then muſt you draw backe the needle gently, and after the ſame manner as you put it in; leſt if you uſe not moderation, you bring backe the Cataract, from whence you couched it, or grievouſly offend the cryſtalline humour, the prime inſtrument of ſight, or the pupill with danger of dilating thereof. Some as ſoone as the worke is done, give the patient ſomething in his hand to looke upon: but *Paulus* approves not thereof, for hee feares leſt his endeavouring or ſtriving to ſee, may draw backe the Cataract. Wherefore it is more wiſedome and better, preſently after the drawing forth of the needle, to put on a ſoft ragge the white of an egge beaten in roſe-water with a little choice alume, and ſo apply it to the eye and neighbouring parts for to binde and hinder the inflammation; then alſo you muſt together therewith bind up the ſound eye, leſt by ſtirring to ſee, it might together therewith draw and move the ſore eye, by reaſon of the ſympathy and conſent they mutually have by the opticke nerves. After all things are thus performed, the patient ſhall bee laid in a ſoft bed, & ſo placed, that his head may lye ſomwhat high; let him be laid far from noiſe, let him not ſpeake, nor eate any hard thing that may trouble his jawes, wherefore let him feed upon liquid meats, as ponado barly cream, culliſſes, gellyes, reare egs, and other meates of the like nature. At the end of eight dayes the ligature that binds up his eyes ſhall be looſed, and his eyes waſhed with roſe water, and putting on ſpectacles, or ſome taffaty, the patient ſhall by little and little accuſtome himſelfe to the light, leſt hee ſhould bee offended by the ſudden meeting with light. But if the ſuffuſion, after ſome ſhort while after, lift it ſelfe up againe, it muſt bee couched againe, but through a new hole, for the eye is pained and tender in the former place. It ſometimes happens by the touch of the needle that the Cataract is not couched whole, but is broken into many peeces; then therefore each of them muſt be followed, and couched ſeverally: if there be any very ſmall particle which ſcapes the needle, it muſt bee let alone, for there is no doubt but that in proceſſe of time it may be diſſolved by the force of the native heat. There are alſo ſome Cataracts which at the firſt touch of the needle are diffuſed & turne into a ſubſtance like to milke or troubled water, for that they are not throughly ripe, yet theſe put us in good hope of recovery, and it bee but for this, that they can never afterwards concrete into one body as before. Wherefore at the length they are alſo diſcuſſed by the ſtrength of the native heat, and then the eye recovers its former ſplendor. If that any other ſymptomes come unlooked for, they ſhall be helped by new counſels and their appropriate remedies.

Gal.lib.10.de uſu partium.cap.5. Celſ.lib.7.

The ſigne of a Cataract well couched.

Lib.6.cap.21.

What to be done after the couching of a Cataract.

Of a Cataract which is broken to peeces.

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CHAP.

CHAP. XXIII.

Of the ſtopping of the paſſage of the eares, and the falling of things thereinto.

The cauſe.

IT ſometimes happeneth that children are born without any holes in their eares, a certaine fleſhy or membranous ſubſtance growing in their bottome or firſt entrance. The ſame may alſo happen afterwards by accident, they being ulcerated by ſome impoſtume or wound, and the eare ſhut up by ſome fleſhy excreſcence or ſcar. When as the ſtopping is in the bottome of the cavity, the cure is more difficult than if it were in the firſt entrance. But there is a double way of cure; for this ſubſtance, whatſoever it be, muſt either be cut out, or elſe eaten away and conſumed by acrid and catheriticke medicines; in performance of which there is need of great moderation of the mind and hand. For it is a part endued with moſt exquiſite ſence and neare the braine, wherefore by handling it too roughly, there is feare of diſtenſion of the nerves, and conſequently of death.

The cure.

Sometimes alſo the preternaturall falling of ſtrange bodies into this paſſage, maketh a ſtopping of the eares, ſuch as are fragments of ſtones, gold, ſilver, iron and the like mettals, pearles, cherry-ſtones, or kernels, peaſe and other ſuch like pulſe. Now ſolid and bonie bodies ſtill retaine the ſame magnitude; but peaſe, ſeeds and kernels, by drawing the moiſture there implanted into them, ſwell up, and cauſe vehement pain by the diſtenſion of the neighbouring parts, wherefore the ſooner they are drawne forth, the better it is for the patient. This ſhall be done with ſmall pincers and inſtruments made in the ſhape of earepicks. But if you profit nothing thus, then muſt you uſe ſuch gymblets as are made for the drawing forth of bullets ſhot deep into the body. Little ſtones and bodies of the like ſtony hardneſſe ſhall bee forced forth by the brain, provoked to concuſſion by ſneeſing, & by dropping ſome oyle of almonds firſt into the paſſage of the eare, that the way may be the more ſlippery; for it will come to paſſe by this ſneeſing, or violence of the internall aire forcibly ſeeking paſſage out, that at length they may bee caſt forth, the mouth and noſtrils being ſtopped with the hand. But it wee cannot thus prevaile, it remaines, that we cut open the paſſage with an inciſion knife, ſo much as ſhall be ſufficient for the putting in and uſing of an inſtrument for to extract them. If any creeping things of little creatures, as fleas, ticks, piſmires, gnats and the like, which ſometimes happeneth, ſhall get therein, you may kill them by dropping in a little oyle and vineger. There is a certaine little creeping thing, which for piercing and getting into the eares, the French call *Perſe-oreille* (wee an Eare-wigge). This, if it chance to get into the eare, may be killed by the foreſaid meanes, you may alſo catch it, or draw it forth by laying halfe an apple to your eare, as a bait for it.

The concuſſive force of ſneeſing.

CHAP. XXIV.

Of getting of little bones and ſuch like things out of the jawes and throate.

The cure different according to the places where they ſticke.

SOmetimes little bones and ſuch like things in eating greedily uſe to ſticke, or as it were faſten themſelves in the jawes or throate. Such bodies if you can come to the ſight of them ſhall bee taken out with long, ſlender and croked mallets made like a Cranes beake. If they do not appear, nor there be no means to take them forth, they ſhalbe caſt forth by cauſing vomit, or with ſwallowing a cruſt of bread, or a dry fig gently chawed, and ſo ſwallowed; or elſe they ſhall be thruſt downe into the ſtomacke, or plucked back with a leeke, or ſome other ſuch like long and ſtiffe crooked body annoynted with oile and thruſt downe the throate. If any ſuch like thing ſhall get into the Weazon you muſt cauſe coughing by taking ſharpe things, or elſe ſneeſing, ſo to caſt forth whatſoever is there troubleſome.

CHAP. XXV.

Of the Tooth-ache.

The Tooth ach a moſt cruell paine.

The cauſe thereof.

Signes of this or that defluxion.

Three ſcopes of curing.

A cold & repercuſſive lotion for the mouth.

Trochiſces for a hot defluxion.

Narcoticks.

OF all paines, there is none which more cruelly tormenteth the patients than the Tooth-ache. For wee ſee them oft-times after the manner of other bones to ſuffer inflammation, which will quickly ſuppurate, and they become rotten, and at length fall away piecemeale; for wee ſee them by daily experience to be eaten and hollowed, and to breed wormes, ſome portion of them putrefying. The cauſe of ſuch paine is either internall, or externall and primitive. The internall is a hot or cold defluxion of humours upon them, filling their ſockets, & thence conſequently driving out the teeth; which is the reaſon that they ſtand ſometimes ſo farre forth, that the patient neither dares nor can make uſe of them to chaw for feare of paine; for that they are looſe in their ſockets by the relaxation of the gums, cauſed by the falling downe of the defluxion. When as they are rotten and perforated even to the roots, if any portion of the liquor in drinking, fall into them, they are pained as if you thruſt in a pin or bodkin, the bitterneſſe of the paine is ſuch. The ſignes of a hot defluxion are ſharpe and pricking paine, as if needles were thruſt into them, a great pulſation in the roote of the pained tooth and the temples, and ſome eaſe by the uſe of cold things. Now the ſignes of a cold defluxion are a great heavineſſe of the head, much and frequent ſpitting, ſome mitigation by the uſe of hot remedies. In the bitterneſſe of paine we muſt not preſently run to Tooth-drawers, or cauſe them preſently to goe in hand to plucke them out. Firſt conſult a Phyſician, who may preſcribe remedies according to the variety of the cauſes. Now here are three intenſions of cureing. The firſt is concerning diet; the other for the evacuation of the defluxion or antecedent cauſe; the third for the application of proper remedies for the aſſwaging of paine. The two former ſcopes, to wit, of diet, and diverting the defluxion by purging, phlebotomie, application of cupping glaſſes to the necke and ſhoulders, and ſcarification, doe abſolutely belong to the Phiſitian. Now for proper and topicke medicines they ſhall be choſen contrary to the cauſe. Wherefore in a hot cauſe, it is good waſhing the mouth with the juice of Pomgranats, plantaine water, a little vinegor wherein roſes, *balauſtiæ* and *ſumach* have beene boyled. But ſuch things as ſhall be applyed for the mitigating of the paine of the teeth, ought to bee things of very ſubtle parts, for that the teeth are parts of denſe conſiſtence. Therefore the ancients have alwaies mixed vineger in ſuch kind of remedies. ℞. *roſar. rub. ſumach. hordei, an.* m. ß *ſeminis hyoſcyami conquaſſati* ʒii. *ſantalorum an.* ʒi. *lactucæ ſummitatum rubi, ſolani, plantaginis, an.* m. ß. *bulliant omnia in aqua lib.* iiii. *& pauco aceto ad hordei crepaturam.* Waſh the mouth with ſuch a decoction being warme. You may alſo make Trochiſces for the ſame purpoſe after this manner. ℞. *ſem. hyoſcyami, ſandarachæ, coriandri, opii an.* ʒß. *terantur & cum aceto incorporentur, formenturque trochiſci apponendi dentibus dolentibus.* Or elſe, ℞. *ſeminis portulacæ, hyoſcyami, coriandri, lentium, corticis ſantali citrini, roſar. rub. pyrethri, camphoræ, an.* ʒß. Let them all bee beaten together with ſtrong vineger, and made into trochiſces, with which being diſſolved in roſe water, let the gums and whole mouth bee waſhed when need requireth. But if the paine bee not aſſwaged with theſe, you ſhall come to narcoticks, which may ſtupefie the nerve; as, ℞. *ſeminis hyoſcyami albi, opii, camphoræ, papaveris albi, an. quantum ſufficit, coquantur cum ſapa, et denti applicentur.* Beſides, you muſt alſo put this following medicine into the eare of the pained ſide. ℞. *opii & caſtorei, an.* ℈i. *miſceantur cum oleo roſato*: It hath ſometimes availed in ſwolne and diſtended gums, being firſt lightly ſcarified, to have applied leaches, for the evacuation of the conjunct matter, as alſo to have opened the veines under the tongue, or theſe which are behind the eares. For I remember that I, by theſe three kindes of remedies, aſſwaged great paines of the teeth. Yet there bee ſome who in this affect open not theſe veines which are behind the eares, but thoſe which are conſpicuous in the hole of the eare in the upper part thereof.

Paine of the teeth ariſing from a cold cauſe and defluxion, may be helped by theſe remedies; boyle roſemary, ſage, and pellitory of Spaine in wine and vinegar, and adde therto a little *aqua vitæ*, in this liquor diſſolve a little treacle, and waſh your teeth therewith. Others mingle Gum *ammoniacum* diſſolved in *aqua vitæ* with a little *ſandaracha* and myrrhe, and lay it to the pained tooth, after *Vigoes* counſaile. *Meſue* thinkes that beaten garlicke carryed in the right or left hand, aſſwages the paine, as the teeth ake upon the right or left ſide. But I being once troubled with grievous paine in this kinde, followed the counſaile of a certaine old woman, and laid garlicke roſted under the embers to my pained tooth, and the paine forthwith ceaſed. The ſame remedy uſed to others troubled with the like affect, had like ſucceſſe. Moreover, ſome thinke it availeable if it bee put into the auditory paſſage. Others drop into the eares oile of *caſtoreum*, or of cloves, or ſome ſuch other chymicall oile. It is good alſo to waſh the teeth with the following decoction. ℞. *rad. pyrethri* ʒß. *menthæ et rutæ an. p.*i. *bulliant in aceto*, and with this decoction being warme, waſh the teeth. Some like fumes better, & they make them of the ſeeds of *Coloquintida* and muſtard, and other like; they take the ſmoake by holding their mouths over a funnell. Other ſome boile pellitory of Spaine, ginger, cinamon, alume, common ſalt, nut megs, cipreſſe nuts, aniſe and muſtard ſeeds, and *euphorbium* in oxycrate, and in the end of the decoction adde a little *aqua vitæ*, and receive the vapour thereof through a funnell: as alſo they waſh their teeth with the decoction, and put cotton dipped therein into the eare, firſt dropping in a little thereof. Some there are which affirm that to waſh the teeth with a decoction of Spurge is a very good and anodyne medicine in the tooth-ach. I have oft times aſſwaged intolerable paines of the teeth, by applying veſicatories under the eare, to wit, in that cavity whereas the lower jaw is articulated with the upper: for the veine, artery and ſinew which are diſtributed to the roots of the teeth, lye thereunder. Wherfore the bliſters being opened, a thinne liquor runnes out, which doth not onely cauſe, but alſo nouriſh or feed the diſeaſe. But if the tooth be hollowed, and that the patient will not have it puld out, there is no ſpeedier remedy, than to put in cauſtick medicines, as oile of vitrioll, *aqua fortis*, and alſo a hot iron; for thus the nerve is burnt inſunder, and loſeth its ſenſe. Yet ſome affirm that the milky juice that flowes from Spurge made into a paſte with *Olibanum* and *amylum*, and put into the hollowed tooth, will make it preſently to fall away in peeces. When the Gums and Cheekes are ſwollen with a manifeſt tumour, then the patient begins to be ſomewhat better and more at eaſe. For ſo by the ſtrength of nature, the tumor cauſing the paine is carryed from within outwards. But of what nature ſoever the matter which cauſeth the paine be, it is convenient to intercept the courſe thereof with *Empl. contra rupturam*, made with pitch and maſtick, and applyed to the temple on that ſide where the tooth aketh.

Hot fumes.

Veſicatories.

Cauſticks.

CHAP. XXVI.

Of other affects of the teeth.

THe teeth are alſo troubled with other preternaturall affects. For ſometimes they ſhake by relaxation of the gums, or elſe become corrupt and rotten, or have wormes in them, or elſe are ſet on edge. For the firſt, the gummes are relaxed either by an externall or primitive cauſe, as a fall or blow: or elſe by an internall or antecedent, as by the defluxion of acrid or wateriſh humours from the braine, or through want of nouriſhment in old bodies. If the teeth grow looſe by the meanes of the decaying gums, the diſeaſe is then incurable: but you may withſtand the other cauſes by the uſe of ſuch things as faſten the teeth, ſhunning on the contrary ſuch as may looſen them. Therefore the patient muſt not ſpeake too earneſtly, neither chaw hard things. If they become looſe by a fall or blow

Cauſes of looſeneſſe of the teeth.

blow, they muſt not bee taken forth, but reſtored and faſtened to the next that remaine firme, for in time they will be confirmed in their ſockets, as I tryed in *Anthony de la Rue* a tailour, who had his jaw broken with the pommell of a dagger, and three of his teeth looſened and almoſt ſhaken out of their ſockets; the jaw being reſtored, the teeth were alſo put in their places, and bound to the reſt with a double waxed thread; for the reſt, I fed the patient with broths, gellyes, and the like, and I made aſtringent gargariſmes of cypreſſe nuts, myrtle berries, and a little alum boyld in oxycrate, and I wiſhed him to hold it a good while in his mouth: by theſe means I brought it ſo to paſſe, that hee within a while after could chaw as eaſily upon thoſe teeth, as upon the other. I heard it reported by a credible perſon, that he ſaw a Lady of the prime nobility, who inſtead of a rotten tooth ſhe drew, made a ſound tooth, drawne from one of her waiting maids at the ſame time, to be ſubſtituted and inſerted, which tooth in proceſſe of time, as it were taking roote, grew ſo firme, as that ſhe could chaw upon it as well as upon any of the reſt. But as I formerly ſaid, I have this but by heare-ſay.

A Hiſtory.

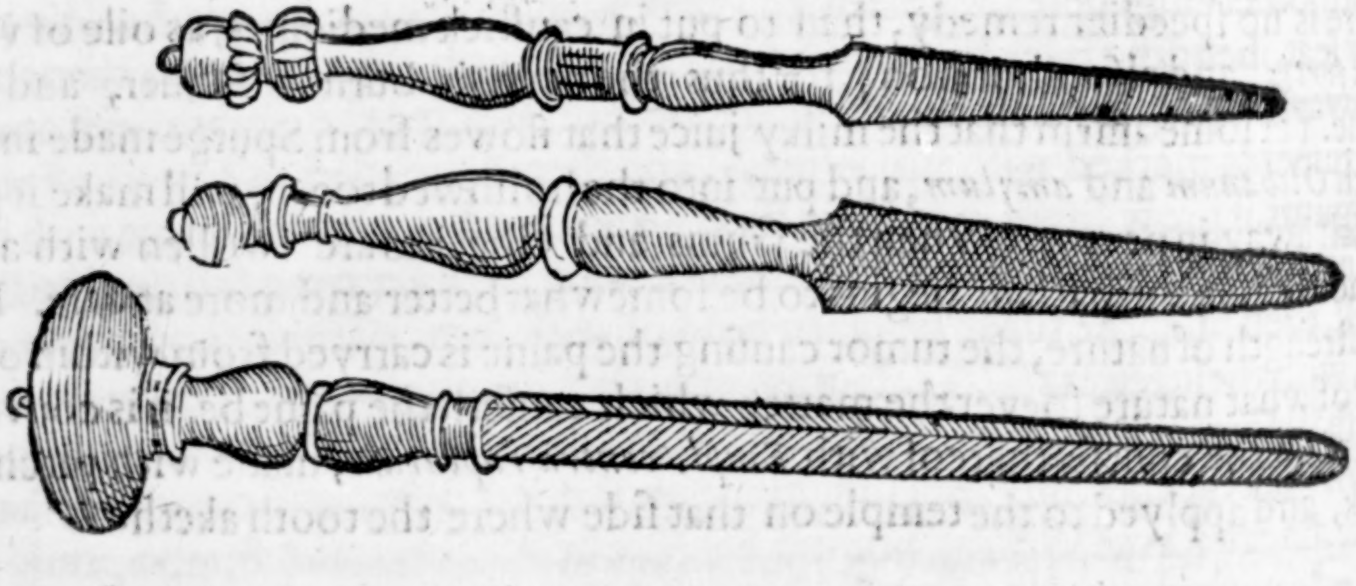
The cauſes of hollow teeth.

Now the teeth are corroded or eaten in by an acride and thinne humour penetrating by a plenteous and frequent defluxion even to their roots, and being there conteined, it putrefies, and becomming more acride, it doth not only draw the teeth into the contagion of its putrefaction, but alſo perforats and corrodes them.

The cure.

The putrefaction may bee corrected, if after generall medicines, you put oile of vitrioll or *aqua fortis* into the hole of the eaten tooth: or elſe, if you burne the tooth it ſelfe to the roote with a ſmall iron wyar being red hot: you ſhall thruſt this hot iron through a pipe or cane made for the ſame purpoſe, leſt it ſhould harm any ſound part by the touch therof, and thus the putrefaction, the cauſe of the arroſion, may be ſtayed. But if the hole bee on the one ſide between two teeth, then ſhall you file away ſo much of the ſound tooth as that you may have ſufficient liberty to thruſt in your wiar without doing any harme.

The formes of Files made for filing the teeth.



Cauſes of wormes in the teeth.

Wormes breeding by putrefaction in the roots of the teeth, ſhall be killed by the uſe of cauſticks, by gargles or lotions made of vinegar wherein, either pellitory of Spain hath bin ſteeped, or Treacle diſſolved alſo; Aloes and Garlike are good to be uſed for this purpoſe.

Cauſes of ſetting the teeth on edge.

Setting the teeth on edge happens to them by the immoderate eating of acride or tart things, or by the continuall aſcent of vapours endued with the ſame quality, from the orifice of the ventricle to the mouth, or by a cold defluxion, eſpecially of acride phlegme, falling from the braine upon the teeth, or elſe by the too exceſſive uſe of cold or ſtupifing liquors. This affect is taken away, if after generall medicines and ſhunning thoſe things that cheriſh the diſeaſe, the teeth bee often waſhed with *aqua vitæ*, or good wine wherein ſage, roſemary, cloves, nutmegs and other things of the like nature have bin boyled.

CHAP.

CHAP. XXVII.

Of drawing of teeth.

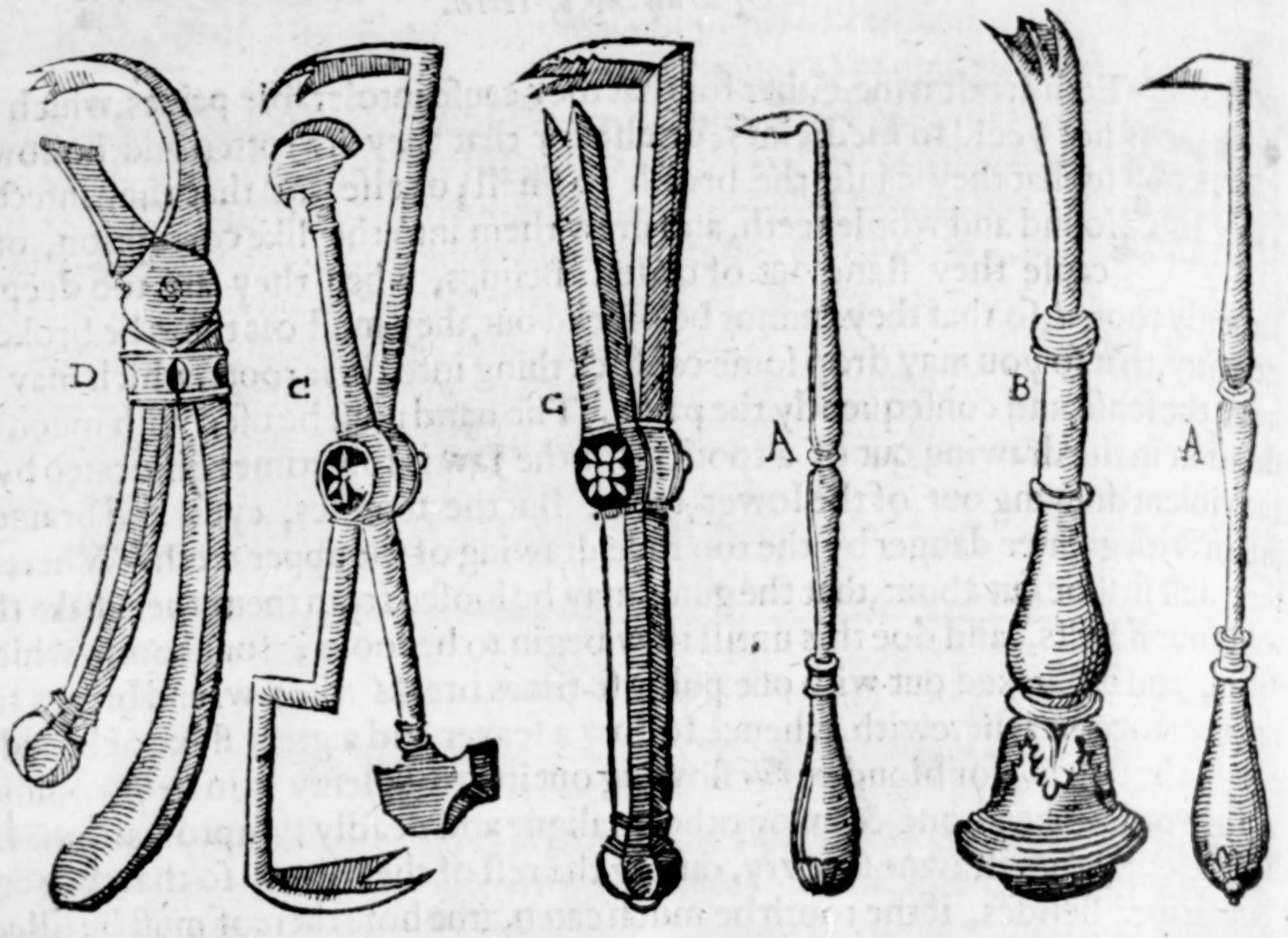
TEeth are drawne, either for that they cauſe intolerable paines, which will not yeeld to medicines, or elſe for that they are rotten and hollowed, ſo that they cauſe the breath to ſmell; or elſe for that they infect the ſound and whole teeth, and draw them into the like corruption, or becauſe they ſtand out of order. Beſides, when they are too deep and ſtrongly rooted, ſo that they cannot be pluckd out, they muſt oft times be broken of neceſſity, that ſo you may drop ſome cauſtick thing into their roots, which may take away the ſenſe, and conſequently the paine. The hand muſt be uſed with much moderation in the drawing out of a tooth; for the Jaw is ſometimes diſlocated by the too violent drawing out of the lower teeth. But the temples, eyes and braine are ſhaken with greater danger by the too rude drawing of the upper teeth. Wherefore they muſt firſt be cut about, that the gums may be looſed from them, then ſhake them with your fingers, and doe this untill they begin to be looſe; for a tooth which is faſt in, and is plucked out with one pull, oft-times breaks the jaw, and brings forth the piece together therewith, whence follow a feaver and a great fluxe of bloud not eaſily to be ſtayed (for bloud or *pus* flowing out in great plenty is, in *Celſus* opinion, the ſign of a broken bone) & many other maligne and deadly ſymptoms: ſome have had their mouthes drawne ſo awry, during the reſt of their lives, ſo that they could ſcarce gape. Beſides, if the tooth be much eaten, the hole thereof muſt be filled either with Lint, or a corke, or a piece of lead well fitted thereto, leſt it be broken under your *forceps*, when it is twitched more ſtraightly to be plucked out, and the root remain, ready in a ſhort time to cauſe more grievous paine. But judgement muſt be uſed, and you muſt take ſpeciall care leſt you take a ſound tooth for a pained one; for oft-times the patient cannot tell, for that the bitterneſſe of paine by neighbourhood is equally diffuſed over all the jaw. Therefore for the better plucking out a tooth, obſerving theſe things which I have mentioned, the patient ſhall be placed in a low ſeat, bending back his head between the Tooth-drawers legs; then the Tooth-drawer ſhall deeply ſcarifie about the tooth, ſeparating the gums therfrom with the inſtruments marked with this letter A. and then if ſpoyled as it were of the wall of the gums, it grow looſe, it muſt be ſhaken and thruſt out by forcing it with the three-pointed levatory noted with this letter B. but if it ſticke in too faſt, and will not ſtirre at all, then muſt the tooth be taken hold of with ſome of theſe toothed *forcipes* marked with theſe letters C. D. E. now one, then another, as the greatneſſe, figure, and ſite ſhall ſeeme to require. I would have a tooth-drawer expert and diligent in the uſe of ſuch toothed mullets; for unleſſe one know readily and cunningly how to uſe them, he can ſcarce ſo carry himſelf, but that he will force out three teeth at once, oft-times leaving that untoucht which cauſed the paine.

A caveat in drawing of teeth.

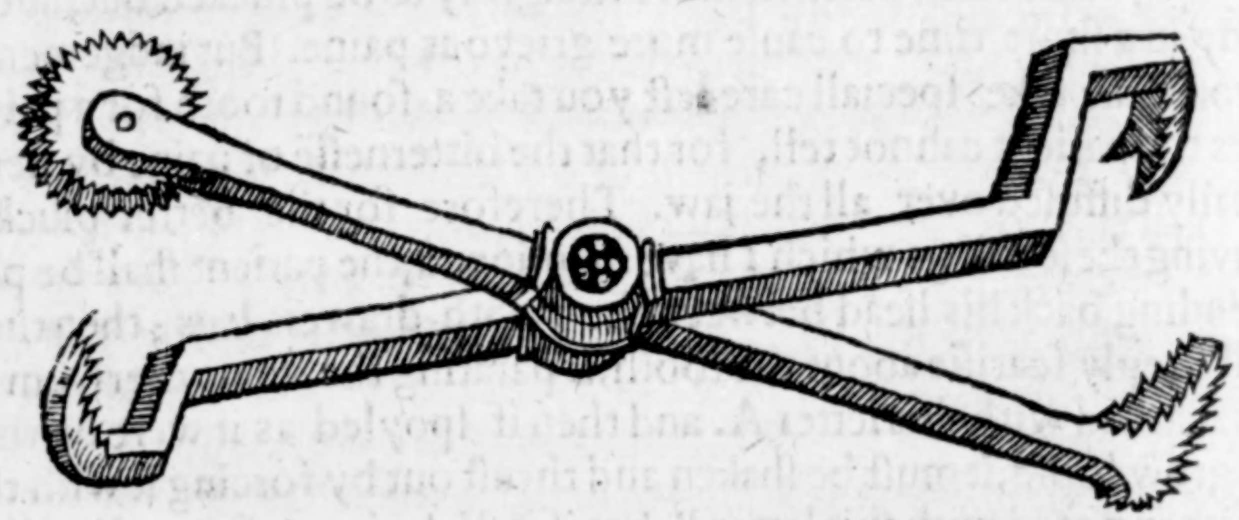
Lib.7.cap.18.

The maner of drawing teeth.

The effigies of Forcipes *or mullets for the drawing of teeth.* *Instruments for ſcraping the teeth, and a three-pointed levatory.*



The forme of another Inſtrument for drawing of teeth.



What to be done when the tooth is pluckt out.

After the tooth is drawn, let the blood flow freely, that ſo the part may be freed from pain, and the matter of the tumor diſcharged. Then let the tooth-drawer preſſe the fleſh of the gums on both ſides with his fingers whereas hee tooke out the tooth, that ſo the ſocket that was too much dilated and oft times torne by the violence of the plucke, may be cloſed again. Laſtly, the mouth ſhall be waſhed with oxycrate; and if the weather bee cold, the patient ſhall take heed of going much in the open aire, leſt it cauſe a new defluxion upon his teeth.

Chap. XXVIII.

Of cleanſing the Teeth.

Cauſes of foule or ruſty teeth.

PEices of meat in eating ſometimes ſticke between the teeth, and becomming corrupt by long ſtaying there, doe alſo hurt the teeth themſelves, and ſpoile the ſweetneſſe of the breath. Hee that would eſchew this, ought preſently after meate to waſh his mouth with wine mixed with water, or oxycrate, and well to clenſe his teeth that no ſlimy matter adhere to them. Many folkes teeth by their owne default gather an earthy filth of a yellowiſh collour, which eates into them by little and little, as ruſt eates into iron. This ruſty filthineſſe, or as it were mouldineſs of the teeth, doth alſo oft times grow

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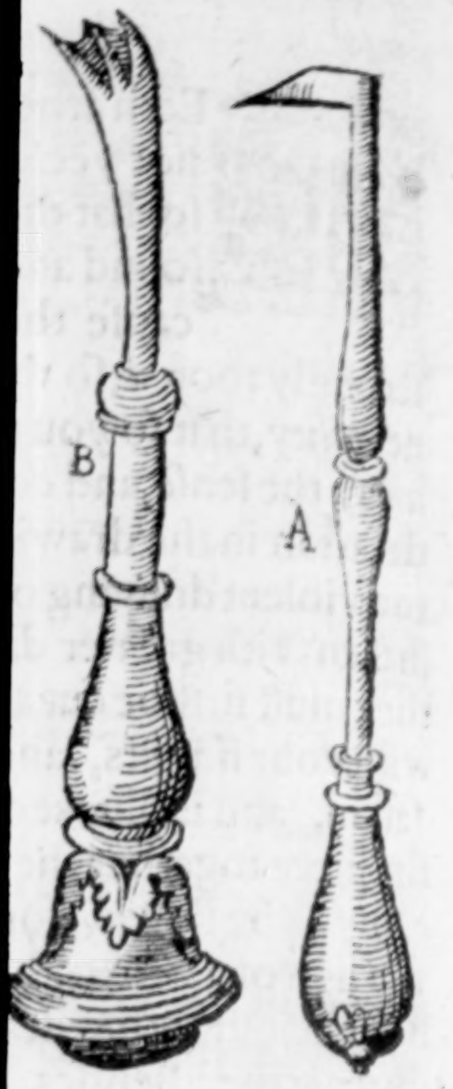
raping the teeth,
intea levatory.



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by the omitting of their proper duty, that is, of chawing. Whenceſoever this ſlimy filth proceeds, wee muſt get *Dentifrices* to fetch it off withall, and then the teeth muſt be preſently rubbed with *aqua fortis* and *aqua vitæ* mixed together, that if there be any thing that hath ſcaped the *Dentifrices*, it may bee all fetched off; yet ſuch acride waſhings are hurtfull to the ſound teeth, for that they by little and little conſume and waſte the fleſh of the gums.

The cure.

A caution in the uſe of acride things.

Dentifrices ſhall be made of the roote of marſh mallowes boiled in white wine & Alume; and as when the teeth are looſe wee muſt abſtaine from ſuch things as are hard to be eaten and chawed, but much more from breaking of ſuch things as are of a bony conſiſtence, alſo here we muſt ſhunne all things that by their toughneſſe ſtick to the teeth. Many for the cleanſing of the teeth, commend a powder made of ſcuttle bones, purple ſhells, pumice ſtone, burnt alume, and harts horne, and a little cinamon, which is a ſingular remedy for the teeth howſoever affected. Many other are content with bread only toſted & beaten; but this following water is very effectuall to whiten the teeth. ℞. *ſal. ammon. & gemmei, an.* ℥i. *alum. roch.* ℥ß. *aquæ roſ. quod ſufficit, deſtillentur.* And let the teeth be cleanſed with this diſtilled liquor.

A water to whiten the teeth.

CHAP. XXIX.

Of the impediment and contraction of the Tongue.

THe tongue is ſometimes tyed and ſhort from the nativity; as when the liberty of the tongue is reſtrained by the ſubject and neighbouring as well membraines as muſcles, being either too ſhort or too hard. Sometimes this diſeaſe happens after they are borne by ſome accident or preternaturall affect, as by too hard a ſcarre left by the healing of an ulcer under the tongue. The patient at his beginning to ſpeake, is too ſlow in ſpeaking, but preſently leaving his ſlowneſſe hee becomes too quicke, ſo that he ſtammers. If the diſeaſe proceed from the aſtriction and ſhortneſſe of the ligamentall membrane lying under the tongue, then the in inciſion ſhall bee made broadwiſe, having great care that the veines and arteries which are there, be not violated, for feare leſt they ſhould cauſe a *hæmorrhagy* not eaſily to be ſtayed: Then the mouth ſhall be preſently waſhed with oxycrate, and ſome lint dipped in ſyrupe of dryed roſes, or honey of roſes put into the midſt of the inciſion, leſt the part of the ligament, eſpecially on the night time when the tongue is ſilent and at reſt, ſhould grow to the reſt of the ligament. For the ſame purpoſe the finger ſhall be often thruſt this way, and the tongue more violently rowld up and down, & thruſt out of the mouth. Yet ſomtimes this ligament is ſo thick & ſhort, and therfore holds down the tongue ſo cloſe, that you cannot come to cut it with a knife or lancet without great and manifeſt danger of death by bleeding. Therefore in ſuch a caſe a needle and thread ſhall bee thruſt through it, and ſo the thread ſhall bee tyed ſtraiter and ſtraiter every day, untill by little and little this ligamentall tye of the tongue, which by its immoderate ſhortneſſe intercepts the liberty of the motion ſhall be conſumed and broken.

The cauſe of being tonguetied.

The cure.

Another way to cut it.

CHAP. XXX.

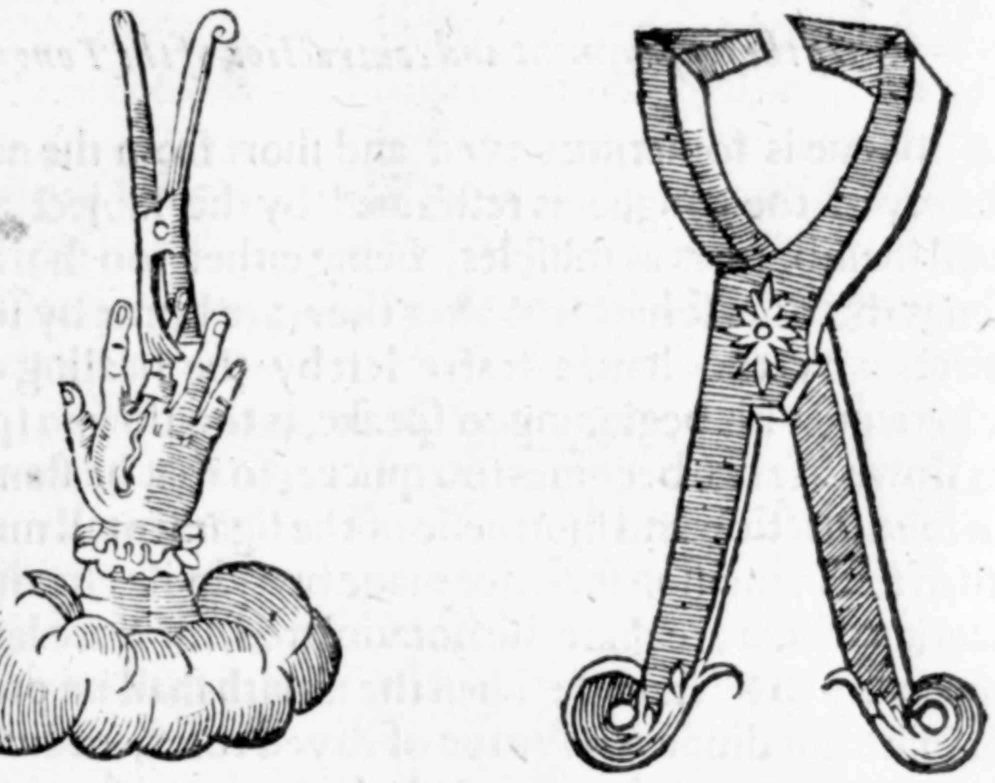
Of ſuperfluous Fingers, and ſuch as ſticke together.

EAch hand hath naturally five fingers onely; whatſoever is more or leſſe is againſt nature: and if there be fewer, it is a fault not to be helped by art. But if there be more, that for the moſt part may be helped by art: ſuperfluous fingers uſually grow by the thumbe, or the little finger, but ſeldome otherwiſe, Theſe are either wholly fleſhy, or have bones of their kind and nailes upon them. Thoſe which are of a bony nature doe either ariſe from the joints of the naturall fingers, and are joynted like them, and ſo are oft times move-

The differences.

moveable, or elſe from ſome middle ſpace of a joint, and theſe have not power to ſtirre or move. Now they are ſometimes equall in magnitude to the naturall fingers to which they grow, yet more frequently they are ſhorter. Thoſe which are onely fleſhy, are eaſily amputated and made even with a razour; but ſuch as are alſo bony cannot be cut off, unleſſe with the cutting mullets hereafter deſcribed, and this is a diſeaſe of the fingers in number. There is alſo another diſeaſe in figure, for they ſomtimes ſticke together, and otherwhiles they are very little ſeparated. This fault happens either from the firſt originall by the error of the formative faculty; or elſe it happens afterwards by accident, as by a wound or burne ill cured. For neighbouring fingers being ulcerated do eaſily grow together, unleſſe they be kept aſunder by a linnen ragge. And if they by chance ſhall grow together by a little and thin ſkinne and fleſh, they ſhall forthwith be divided with a ſharp razour; but if they be joyned by the interpoſition of a more groſſe and denſe ſubſtance, to wit, the nerves, tendons, and veſſels, being knit together on each ſide, it will be beſt not to meddle at all with the dividing them.

Cutting Mullets neatly made for the cutting off ſuperfluous Fingers.



The cure of nailes running into the fleſh of the fingers.

Neither muſt wee omit, that many have their nailes run with ſuch bony ſharpeneſſe into the fleſh of their fingers lying under them, that they cauſe moſt cruell pain; neither commonly do you availe any thing by paring them; for growing up within a while after, they preſſe downewards againe with the more violence. Therefore the Surgeon is often forced to cut away all the fleſh whereinto the ſharpeneſſe of the naile runs. Which I have done in many with happy ſucceſs. Many have corns growing upon their fingers in divers faſhions: They are taken off by paring away by little and little the callous hardneſſe, and then laying a head of garlicke beaten thereon. Yet the cure is more quick and certaine which is performed by cauſtickes, as *aqua fortis*, or oile of vitrioll.

How to take off the cornes of the fingers.

CHAP. XXXI.

Of the too ſhort a Præpuce, and of ſuch as have bin circumciſed.

The cauſe.

WHen as the Præpuce or foreskin is too ſhort, it cannot cover the *glans*. This happens either by nature, to wit, by the firſt conformation, or afterwards by ſome accident, as to thoſe whom religion and the cuſtome of their nation bids to be circumciſed. The cure is thus. The Præpuce is turned up, and then the inner membrane thereof is cut round, and great care is had, that the veine and artery which are there betweene the two membranes

The cure.

of the Præpuce, be not cut inſunder. Hence it is drawn downward by extenſion, untill it cover the *glans*, a deſiccative emplaſter being firſt put betweeen it and the *glans*, leſt they ſhould grow together. Then a pipe being firſt put into the urinary paſſage, the præpuce ſhall be there bound untill the inciſion be cicatrized. This cure is uſed to the Jewes, when having abjured their religion full of ſuperſtitions, for handſomneſſe ſake, they would cover the nut of their yard with a præpuce, and ſo recover their cut off skinne.

CHAP. XXXII.

Of Phymoſis *and* Paraphymoſis, *that is, ſo great a conſtriction of the præpuce about the* Glans *or Nut, that it cannot be bared or uncovered at Pleaſure.*

THe prepuce is ſtraitened about the *Glans* two waies; for it either covers the whole nut, & ſo ſtraitly encompaſſes the end therof, that it cannot be drawne upwards, and conſequently the nut cannot be uncovered; or elſe it leaves the *Glans* bare under it, being faſtened ſo ſtiffely to the roots thereof, that it cannot bee turned up, nor drawn down, or over the *Glans*. The firſt manner of conſtriction is termed *Phymoſis*, the latter *Paraphymoſis*. The causes. The *Phymoſis* happens either by the fault of the firſt conformation, or elſe by a ſcarre, through which occaſion the præpuce hath growne leſſer, as by the growing of warts. Now *Paraphymoſis* is often occaſioned by the inflammation of the yard, by impure copulation; for hence ulcers breed betweene the præpuce and *Glans*, with ſwelling, and ſo great inflammation, that the præpuce cannot bee turned backe. Whence it is that they cannot bee handled and cured as you would, and a gangrene of the part may follow, which may by the contagion bring death to all the body, unleſs it be hindred & prevented by amputation: The cure. but if a ſcar be the cauſe of the conſtriction of the præpuce, the patient being plac'd in a convenient ſite, let the præpuce be drawne forth and extended, and as much as may be ſtretched and enlarged, then let the ſcarre be gently cut in three or foure places on the inner ſide with a crooked knife, but ſo, that the gaſhes come not to the outſide, and let them be an equall diſtance each from other. But if a fleſhy excreſcence or a wart ſhall be the occaſion of this ſtraitneſſe and conſtriction, it ſhall be conſumed by the ſame remedies, by which the warts of the wombe and yard are conſumed or taken off. But when as the præpuce doth cloſely adhere to the *Glans* on every ſide, the cure is not to be hoped for, much leſſe to be attempted.

CHAP. XXXIII.

Of thoſe whoſe Glans *is not rightly perforated, and of the too ſhort or ſtrait ligament, bridle, or Cord of the yard.*

SOme at their birth, by evill conformation, have not their *Glans* perforated in the middle, but have only a ſmall hole underneath, toward the bridle & ligament of the yard, called the cord. The cauſe. Which is the cauſe, that they do not make water in a ſtrait line, unleſſe they turn up their yard toward their belly, neither by the ſame reaſon can they beget children, becauſe through this fault of conformation, the ſeed is hindred from being caſt directly into the wombe. The cure. The cure is wholly chirurgicall, and is thus performed. The præpuce is taken hold of and extended with the left hand, but with the right hand, the extremity thereof, with the end of the *Glans*, is cut even to that hole which is underneath. But ſuch as have the bridle or ligament of the yard too ſhort, ſo that the yard cannot ſtand ſtraight, but crooked, and as it were turned downewards; in theſe alſo the generation of children is hindred, becauſe the ſeed cannot be caſt directly and plentifully into the wombe. Therefore this ligament muſt be cut with much dexterity, and the wound cured after the manner of other wounds, having regard to the part.

Such as are borne without a hole in their fundament are not long lived.

Children alſo are ſometimes borne into the world with their fundaments unperforated, for a skinne preternaturally covering the part, hinders the paſſage forth of the excrements; thoſe muſt have a paſſage made by art with an inſtrument, for ſo at length the excrements will come forth: yet I have found by experience, that ſuch children are not naturally long lived, neither to live many dayes after ſuch ſection.

Chap. XXXIV.

Of the cauſes of the ſtone.

Why children are ſubject to the ſtone in the bladder.

The cauſe.

THE ſtones which are in the bladder have for the moſt part had their firſt originall in the reines or kidneys, to wit, falling down from thence by the ureters into the bladder. The cauſe of theſe is twofold, that is, materiall and efficient. Groſſe, tough, and viſcide humours, which crudities produce by the diſtempers of the bowels and immoderate exerciſes, chiefly immediately after meat, yeeld matter for the ſtone; whence it is that children are more ſubject to this diſeaſe than thoſe of other ages. But the efficient cauſe is either the immoderate heate of the kidneys, by meanes whereof the ſubtler part of the humors is reſolved, but the groſſer and more earthy ſubſides, and is hardened as we ſee bricks hardened by the ſun and fire; or the more remiſſe heat of the bladder, ſufficient to bake into a ſtone the *fæces* or dregges of the urine gathered in great plenty in the capacity of the bladder. The ſtraightneſſe of the ureters and urenary paſſage may be accounted as an aſſiſtant cauſe. For by this meanes the thinner portion of the urine floweth forth, but that which is more feculent and muddy being ſtayed behind, groweth as by ſcaile upon ſcaile, by addition and collection of new matter into a ſtony maſſe. And as a weeke often-times dipped by the Chandler into melted tallow, by the copious adheſion of the tallowy ſubſtance preſently becomes a large candle; thus the more groſſe and viſcide fæces of the urine ſtay as it were at the barres of the gathered gravell, and by their continuall appulſe are at length wrought and faſhioned into a true ſtone.

Chap. XXXV.

Of the ſignes of the ſtone of the Kidneys and bladder.

Why the thigh is numme in the ſtone of the reines.

Signes of the ſtone in the bladder.

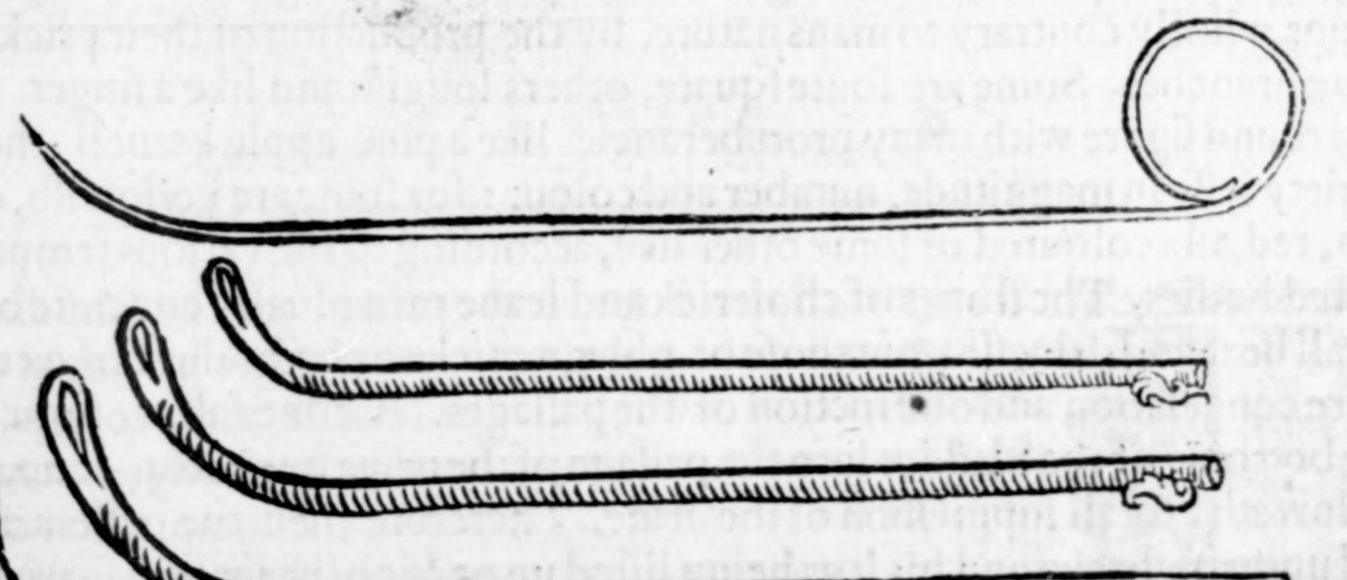
Why ſuch as have a ſtone in the bladder are troubled with the falling of the fundament.

THE ſignes of the ſtone in the reines, are the ſubſiding of red or yellow ſand in the urine, a certaine obſcure itching at the kidneys, and the ſenſe of a weight or heavineſſe at the loynes, a ſharp and pricking paine in moving or bending the body, a numneſſe of the thigh of the ſame ſide, by reaſon of the compreſſion cauſed by the ſtone, of the nerves diſcending out of the *vertebræ* of the loynes of the thigh. But when the ſtone is in the bladder, the fundament and whole *perinæum* is preſſed as it were with a heavie weight, eſpecially if the ſtone be of any bigneſſe, a troubleſome & pricking pain runs to the very end of the yard, and there is a continuall itching of that part, with a deſire to ſcratch it: hence alſo by the paine and heat there is a tenſion of the yarde, and a frequent and needleſſe deſire to make water, and ſometimes their urine commeth from them drop by drop. A moſt grievous paine torments the patient in making water, which he is forced to ſhew by ſtamping with his feet, bending of his whole body, and the grating of his teeth. He is oft times ſo tormented with exceſſe of paine, that the *Sphincter* being relaxed, the right gut falleth downe, accompanied with the ſwelling heate and paine of the *Hæmorrhoid* veines of that place. The cauſe of ſuch torment is, the frequent ſtriving of the bladder to expell the ſtone wholly contrary to the nature thereof, whereto by ſympathy the expulſive faculty of the guts and all their parts of the belly come as it were for ſupply. The ſediment of the urine is groſſe & viſcid, and oft-times like the whites of egs, which argueth the weakneſſe of the native heate not attenuating the juices. The patient looketh of a pale and yellowiſh complexion and hollow eyed, by reaſon of the almoſt continuall watching which is cauſed by the bitterneſſe of paine; yet may it more certainely be knowne by putting in, or ſearching with a *Cathater*. Which to doe, the patient ſhall bee wiſhed to ſtand with his body ſomewhat ſtooping, leaning againſt ſomewhat with his backe, and holding his knees ſome foot aſunder. Then the *Cathater* being bigger or leſſer as the body ſhall require, and anointed with oyle or butter, ſhall bee thruſt with a skilfull hand into the paſſage of the urine, and ſo into the capacity of the bladder. But if the *Cathater* cannot come to that capacity, the patient ſhall be placed in ſuch a poſture; then ſhall he be layd upon his backe on a bench, or the feet of a bed, with his knees bended, and his heeles drawn to his buttocks, after which manner he muſt almoſt lie when he is to be cut for the ſtone, as ſhall be ſhewen hereafter. For thus the *Cathater* is more eaſily thruſt into the bladder, and ſhewes there is a ſtone by the meeting and obſcure ſound of the obvious, hard and reſiſting body. You muſt have ſundry *Cathaters*, that they may ſerve for every body bigger and leſſer, and theſe muſt be crooked, ſmooth and hollow. When being thruſt into the urenary paſſage (which before unawares I omitted) they come to the necke of the bladder, they muſt not be thruſt ſtreight into the bladder, but taking hold of the yard with the left hand, they muſt bee gently thruſt with the right directly into the bladder, eſpecially in men, by reaſon of the length and crookedneſſe of the way, which trends in the forme of this letter S. It is not ſo in women by reaſon of the ſhortneſſe and ſtraitneſſe of the necke of the bladder. It is fit your *Cathaters* bee hollow or fiſtulous in manner of a pipe, that they may receive a ſilver wiar or ſtring, that may hinder the groſſe and viſcide humour, clotted blood, or the like, from ſtopping the further end of the *Cathater*, through which the ſuppreſſed urine ought to paſſe & be made. But now aſſoon as we perceive that the *Cathater* is come into the capacity of the bladder, the wiar muſt be drawn forth, that ſo the urine may the freelier flow out by the hollowneſſe of the *Cathater*. You may perceive the ſhapes of theſe inſtruments by this following figure.

How to ſe[illegible] for the ſtone in the bladder with a *Cathater*.

The figure of the necke of the bladder is different in men and women.

The ſigure of Cathæters, *and of a ſilver ſtring or wiar.*



Chap. XXXVI.

Prognoſtickes in the ſtone.

When the ſtone is caſt forth of the kidney (whereas it bred by little and little) and is ſo driven into one of the ureters, that it wholly ſtop it, yet thereupon there followeth no ſuppreſſion of the urine; for ſeeing nature hath made divers parts of our body double, all the urine floweth into the other ureter. But if they ſhall bee both ſtopped with ſtones, there is no doubt but the urine will bee wholly ſuppreſt, and death enſue by the ſuffocation and extinction of the native heat, by the urine flowing back by the rivelits of the veines over all the whole body. Such as have a ſmall ſtone caſt forth of their reines into the cavity of the ureters, theſe, untill this ſtone be fallen into the bladder, have cruell paine with gripings, with often deſire to go to ſtoole and make water, but oft-times do neither. For ſuch oft-times have their bellies diſtended with flatulencies: an argument hereof is their continuall belching, or breaking of wind. But by ſneeſing & coughing, or any other concuſſion of the whole body, a pricking paine is forthwith felt, whereas the ſtone ſtops, eſpecially if it be either rough, or have ſharpe points like hornes. This paine is communicated to the hip and thigh by ſympathie, and ſome have the ſtones drawne up as it were with great violence. To theſe may bee added the Colicke, cholericke vomiting, and almoſt a generall ſweat. The ſtone in the kidnies is moſt commonly bred in ſuch as are ancient, by reaſon of the weakneſſe of the expulſive faculty. But the ſtone in the bladder happeneth to ſuch as are more young, becauſe the native heat is more vigorous in ſuch, and ſtrong and inordinate motions increaſe the ſtrength of the expulſive facultie. When the ſtone is in the bladder, and the urine appeareth bloody, it is the ſigne of a ſmall, as alſo a prickly and rough ſtone, for thus it more eaſily entreth into the neck of the bladder, and exulcerateth it being fleſhy, whence the blood commeth away with the urine, and moſt cruell paine as of needles thruſt into the fleſh, eſpecially after labour and much exerciſe: on the contrary, a larger and more ſmooth ſtone will not cauſe ſuch tormenting paine, and it cauſeth a milkie water. The ſhapes of ſtones bred in the kidnies are various, according to the variety of the ſtrainers through which they paſſe whilſt they are bred. Verily I have ſeen ſtones which repreſented the figure of grayhounds, hogs and other creatures, and things wholly contrary to mans nature, by the production of their prickles and as it were branches. Some are foure ſquare, others longiſh and like a finger, other ſome of a round figure with many protuberancies like a pine-apple kernell; neither is the variety leſſe in magnitude, number and colour: for ſome are yellowiſh, others whitiſh, red, aſh-coloured or ſome other like, according to the various temper of the affected bodies. The ſtones of cholerick and leane men uſually concrete by preternaturall heat and drineſſe; but thoſe of phlegmaticke or fat bodies, of a certaine as it were congelation and obſtruction of the paſſages. A ſtone falling ſometimes from the bottome of the bladder into the paſſage of the urine quite ſtops it up, and thence followeth a totall ſuppreſſion of the urine. Therefore then the patient ſhall be placed upon his backe and his legs being liſted up on high, he ſhall be ſhaken and toſſed up and downe, juſt as one would ſhake up a ſacke to fill it; for thus it is forced back into the bladder from whence it came, from the paſſage of the urine whereinto it was got; yet it may alſo bee forced backe by thruſting in a Cathæter. The paine which afflicteth ſuch as have the ſtone is ſome whiles continuall, yet more frequently it commeth by fits and returnes, ſometimes monethly, otherwhiles yearely. Such as have the ſtone in the kidnies make for the moſt part wateriſh urine. Women are not ſo ſubject to the ſtone as men, for they have the neck of their bladder more ſhort and broad, as alſo more ſtraight; wherefore the matter of the ſtone by reaſon of the ſhortneſſe of the paſſage is evacuated in gravell, before it can be gathered and grow into a ſtone of a juſt magnitude; yet ſtones breed in ſome women and thoſe equally as big as in men, and therefore they are to be cured by ſection and the like remedies.

How death may enſue by the ſuppreſſion of the urine.

Why ſtones of the kidneys have ſundry ſhapes.

Why men are more ſubject to the ſtone than women.

When the ſtone exceedeth the bigneſſe of an egge, it can ſcarce be taken away without the tearing of the bladder, whence happeneth an unvoluntary ſhedding of the water, curable by no art, becauſe the bladder, ſeeing it is nervous and without bloud, being once torne admitteth no conſolidation, adde hereto that inflammation and a gangrene often following the rending of the bladder bring inevitable death. The patient runs the ſame hazzard, if a long ſtone be pulled out ſidewiſe with your inſtrument, or if it be incloſed in a membrain (which kind of ſtone can ſcace be found with a Cathæter) and ſo bee faſtened to the bladder, or otherwiſe if the ſtone it ſelfe bee faſtened into the ſubſtance of the bladder, or laſtly if by any chance the Surgeon being about to plucke out the ſtone ſhall hurt the body of the bladder with his inſtruments. Yet ſtones of an indifferent bigneſs are more ſafly extracted out of the bladder than thoſe which are leſſe, and the patient more frequently and happily recovereth. For they doe not ſcape from the inſtrument, and the patient being uſed a long while to endure pain, as that which hath been a long time a growing, doth more eaſily and conſtantly away with the inflammation, paine and other ſymptomes, which happen after cutting, yea in cutting. Having thus ſpoken of the cauſes, ſigns, places, ſymptomes and prognoſticks, we muſt come to the cure, beginning with that part which is termed *Prophylactice*, that is, the preventing part.

What ſtones cannot be taken out of the bladder without killing the patient.

CHAP. XXXVII.

What cure is to be uſed when we feare the ſtone.

Diet muſt firſt bee appointed, which by the convenient uſe of the ſixe things not naturall (as they terme them) may heape up ſmall ſtore of groſſe, tough and viſcide humours in our bodies. Therefore cold and cloudy aire is to be ſhunned. They muſt abſtaine from fiſh, beefe, porke, water-foule, pulſe, cheeſe, milke meates, fryed and hard egges, rice, cakes and all paſtry, unleavened bread, and laſtly all manner of obſtructing meats. Alſo garlike, onions, leeks, muſtard, ſpices, & laſtly all things which overheat the bloud and humors muſt be ſhunned, eſpecially if you feare that the ſtone is concrete by the heat of the reines. Standing and muddy waters, thicke and troubled wines, beare, and ſuch kind of liquors muſt be eſchewed. Saciety in meats and drinks is to be ſhunned, as that which breeds crudities. Alſo long watching and continuall labour becauſe they inflame the bloud, cauſe crudities, and preternaturall heat muſt carefully be eſchewed, as alſo all more vehement paſſions of the minde. If the body be plethoricke, then it muſt bee evacuated by phlebotomie, purging and vomiting, which is accounted for a ſingular remedy for the prevention of this diſeaſe. For the performance of all which things a Phyſician ſhall be conſulted. But becauſe Phyſicians are not in every place and alwaies at hand, I have thought good to ſet downe theſe following medicines; yet we muſt firſt remember this counſell of *Galen*; The uſe of diureticks, and ſtrong purging medicines is hurtfull, as often as there is inflammation in the reines and bladder, for ſo the confluxe of the humors to the affected parts is the greater, whence the inflammation and paine are increaſed.

What diet ſuch muſt uſe as fear the ſtone.

Lib.13.method.

Wherefore firſt uſing relaxing medicines, as ſixe drams of *Caſſia* newly drawne, with ℈iv. of *Rubarbe* in powder mixed therewith; then lenitive and refrigerating medicines ſhall bee inwardly and outwardly uſed, ſuch as is this following ſyrupe. ℞. *ſummitatum malv. biſmal. & violar. an.* m. ß. *rad. alth.* ℥i. *glycyr.* ℥ß.4. *ſem. frigid. major. an.* ʒi. *fiat decoctio.* ℞. *prædict. decoctionis* ℔.ß. *in colatura diſſolve ſacch. albiſſ.* ℥ii. *mellis albi* ℥iß. *fiat ſyrupus ſecund. artem*; let the patient uſe this often. This following apozeme is alſo very effectual for the ſame purpoſe. ℞. *rad. aſpar. gramin. polyp. querceni, paſſul. mund. an.* ℥ß. *betonic. herniar. agrimon. omnium capill. & pimpinell an.* m. ß.4. *ſem. frigid. major. & ſem. fænic. an.* ʒi. *folior. ſen.* ʒvi. *fiat decoct. ad* ℔.ß. *in colatura diſſolve ſyrupi de Althæa & de herniar. an.* ℥iß. Make a cleare apozeme and let it be aromatized with a little cinamon, for two doſes; let him take the firſt doſis in the morning two houres before meat, and the other at foure of the clock in the afternoone. Moreover

A lenitive and lubricating ſyrupe.

A diuretick Apozeme.

A diuretick and lenitive broth.

A diuretick powder.

The lye made of the aſhes of beane ſtalkes a diuretick.

Anodine gliſters in the ſtone.

Remedies againſt the ſtone of the kidnies comming from a cold cauſe.

Carminative gliſters.

over this following broth hath an excellent and certain power to prevent the ſtone. ℞. *hordei integr.* p.i. *radic. petroſelini, acetoſ. fœnicul. cichor. bruſci an.* ℥i. 4. *ſem. frigidorum conquaſſatorum. an.* ʒß. *fol. acetoſ. portul. lactucæ, ſummitatum malvæ, & violar. an.* m.ß. *bulliant in aqua fluviatili cum gallo gallinaceo & crure vitulino*; let the broth bee kept, and let the Patient take thereof ſixe ounces for foure daies; in the morning two houres before meat, with an ounce of the juice of Citrons gently warmed with the ſame broth at the time of the taking thereof; for thus, much urine will be made in a ſhort while after, full of a ſandy ſediment and a groſſe viſcide humour. Whereby you may certainly gather that this kind of broth is very effectuall to cleanſe the paſſages of the urine, neither in the interim, doth it any harme to the ſtomacke and other parts by which it paſſeth: ſo that it may be rightly eſteemed a medicinall nouriſhment. You may alſo profitably uſe this following powder. ℞. *nucleorum meſpilorum* ℥i. *pul. elect. diamarg. frig.* ʒii. 4. *ſem. frigid. majorum mund. glycyrhizæ raſæ,* ʒi. *ſem. ſaxifrag.* ʒii. *ſem. milii ſolis, geniſt. pimpinel. bruſci & aſparag. an.* ℈i. *ſem. althea,* ʒiß, *ſacch. albiſſ.* ℥vi. *fiat pulvis*; let him take a ſpoon full in the morning three houres before meat. Alſo ſome thinke that lye made of the ſtalkes and huskes of beanes is a good preſervative againſt this diſeaſe. Beſides the uſe of this following glyſter hath done good to many. ℞. *fol. lactuc. ſcariol. portul. an.* m.i. *flor. viol. & nenuph. an.* p.i. *fiat decoctio. ad lib.* i. *in colatura diſſolve caſsiæ fiſtulæ* ℥i. *mellis viol. & ſacch. rub. an.* ℥iß. *olei viol.* ℥iiii. *fiat clyſter.* This which followeth is the fitter to aſſwage the paine. ℞. *flo. cham. melil. ſummitat. aneth. berul. an.* p. ii. *fiat decoctio in lacte vaccino*; *in colatura diſſolve caſsiæ fiſtul. & ſacchar. alb. an.* ℥i. *vitellos ovorum num.* ii. *olei anethini, & chamæm. an* ℥ii. *fiat clyſter.* In the interim let the kidneys bee annointed on the outſide with *unguentum roſatum, refrigerans Galen.* and *populeon* uſed ſeverally, or mixed together, laying thereupon a double linnen cloth dipped in oxycrate. But if the concretion of the ſtone be of a cold cauſe, the remedies muſt bee varied, as follows; ℞. *terebinth. venet.* ʒi. *cort. citri* ʒii. *aquæ coct.* ʒii. *fiat potio.* Or elſe, ℞. *caſsiæ recent. extract.* ʒvi. *benedict. lax.* ʒiii. *aq. fœnicul.* ℥ii. *aq. aſparag.* ℥i. *fiat potio*; let him take it three houres before dinner: this following apozeme is alſo good. ℞. *rad. cyper. bardan. & gram. an* ʒiii. *biſmal. cum toto, beton. an.* m.ß. *ſem. milii ſolis, bardan. urtic. an* ʒii. *ſem. melon. glycyrhiz. raſ. an.* ʒiiß. *ficus num.* 4. *fiat. decoct. ad quart.* iii. *in expreſſa colatura, diſſolve ſyrup. de caphan. & oxymilitis ſcillitici an.* ℥i. ß. *ſacchar. albiſ.* ʒiii. *fiat apozema pro tribus doſibus, clarificetur & aromatiz. cum.* ʒi. *cinam. &* ʒß. *ſant. citrin.* let him take foure ounces three houres before dinner. Or elſe, ℞. *rad petroſel. fœnicul. an.* ʒi. *ſaxifrag. pimp. gram. & bardan. an.* m. ß. *quatuor ſeminum frig. major. mundat. & milii ſolis an.* ʒii. *fiat decoctio, cape de colatura* ℔. ß. *in qua diſſolve ſacch. rub. & ſyrup. capill. ven. an.* ℥i. ß. Let it be taken at three doſes, two houres before meat. The following powder is very effectuall to diſſolve the matter of the ſtone. ℞. *ſem. petroſel. & rad. ejuſdem mundat. an* ℥ß. *ſem. cardui, quem colcitrapam vocant,* ℥i. let them be dryed in an oven or ſtone with a gentle fire, afterwards let them be beaten ſeverally and make a powder, whereof let the patient take ℈i. ß. or two ſcruples with white wine, or chicken broth faſting in the morning by the ſpace of three daies. Or, ℞. *coriand. præp.* ℈iv. *aniſ. marathri, ganor. alkakengi, milii ſolis, an* ʒii. *zinzib. & cinam. an.* ℈ii. *turbith. electi* ʒi. *cari* ℈ii. *galang. nucis moſchat. & lapid. judiaci an.* ℈i. *fol. ſennæ mund. ad duplum omnium, diacrydii* ʒii. ß. *miſce, fiat pulvis*: the doſis is about ʒi. with white wine three houres before meate. Againſt the flatulencies which much diſtend the guts in this kind of diſeaſe, gliſters ſhall be thus made; ℞. *malv. biſmal. pariet. origani, calament. flo. chamæm. ſumitat. anethi, an.* m. ß. *aniſi, carvi. cumini, fœnic. an.* ℥ß. *baccar. laur.* ʒiii. *ſemin. rutæ* ʒii. *fiat decoctio, in colatura, diſſolve bened. lax. vel diaphænic.* ℥ß. *confect. bac. lauri* ʒiii. *ſacchar. rub.* ℥i. *olei aneth. chamæm. & rutar. an.* ℥i. *fiat clyſter.* Or, ℞. *olei nucum & vini mal. an.* ℔. ß. *aq. vitæ.* ℥ß. *fiat clyſter*; let it be kept long, that ſo it may have the more power to diſcuſſe the winde.

CHAP.

prevent the ſtone.
n.℥i. 4.ſem.frigi-
alvæ,& violar.an.
let the broth bee
the morning two
warmed with the
will be made in a
umour. Whereby
to cleanſe the paſ-
e ſtomacke and o-
a medicinall nou-
. nucleorum meſpi-
glycyrhizæ raſæ,ʒi.
an.℈i.ſem. althea,
rning three houres
huskes of beanes is
owing glyſter hath
& nenuph.an.p.i.fiat
ch.rub. an. ℥iß.olei
vage the paine. ℞.
vaccino ; in colatura
lei anethini,& cha-
nted on the outſide
erally,or mixed to-
ate. But if the con-
ied, as follows ; ℞.
℞. caſſiæ recent. ex-
otio ; let him take it
d. ℞.rad. cyper.bar-
bardan.urtic.an ℥ii.
i.in expreſſa colatu-
lbiſ. ℥iii. fiat apoze-
ant. citrin. let him
roſel.fœnicul. an.℥i.
r. mundat. & milii.
rub. & ſyrup. capill.
at. The following
em.petroſel. & rad.
hem be dryed in an
verally and make a
hite wine,or chick-
, ℞. coriand. præp.
am.an. ℈ii. turbith.
næ mund.ad duplum
h white wine three
end the guts in this
t.origani,calament.
ß. baccar.laur. ʒiii.
anic.ʒß.conſect.bac.
ter. Or, ℞. olei nu-
,that ſo it may have

CHAP. XXXVIII.

What is to be done, when the ſtone falleth out of the Kidney into the Ureter.

Oft-times it falleth out that the reines uſing their expulſive faculty force downe the ſtone (whoſe concretion and generation the Phyſicians by the formerly preſcribed meanes could not hinder) from themſelves into the ureters ; but it ſtayeth there either by reaſon of the ſtraightneſſe of the place, or the debility of the expulſive faculty. Therefore then cruell paine tormenteth the patient in that place whereas the ſtone ſticketh, which alſo by conſent may be communicated to the hippe, bladder, teſticles and yard, with a continuall deſire to make water and goe to ſtoole. In this caſe it behooveth the Phyſician that he ſupply the defect of nature, and aſſiſt the weake indeavours.

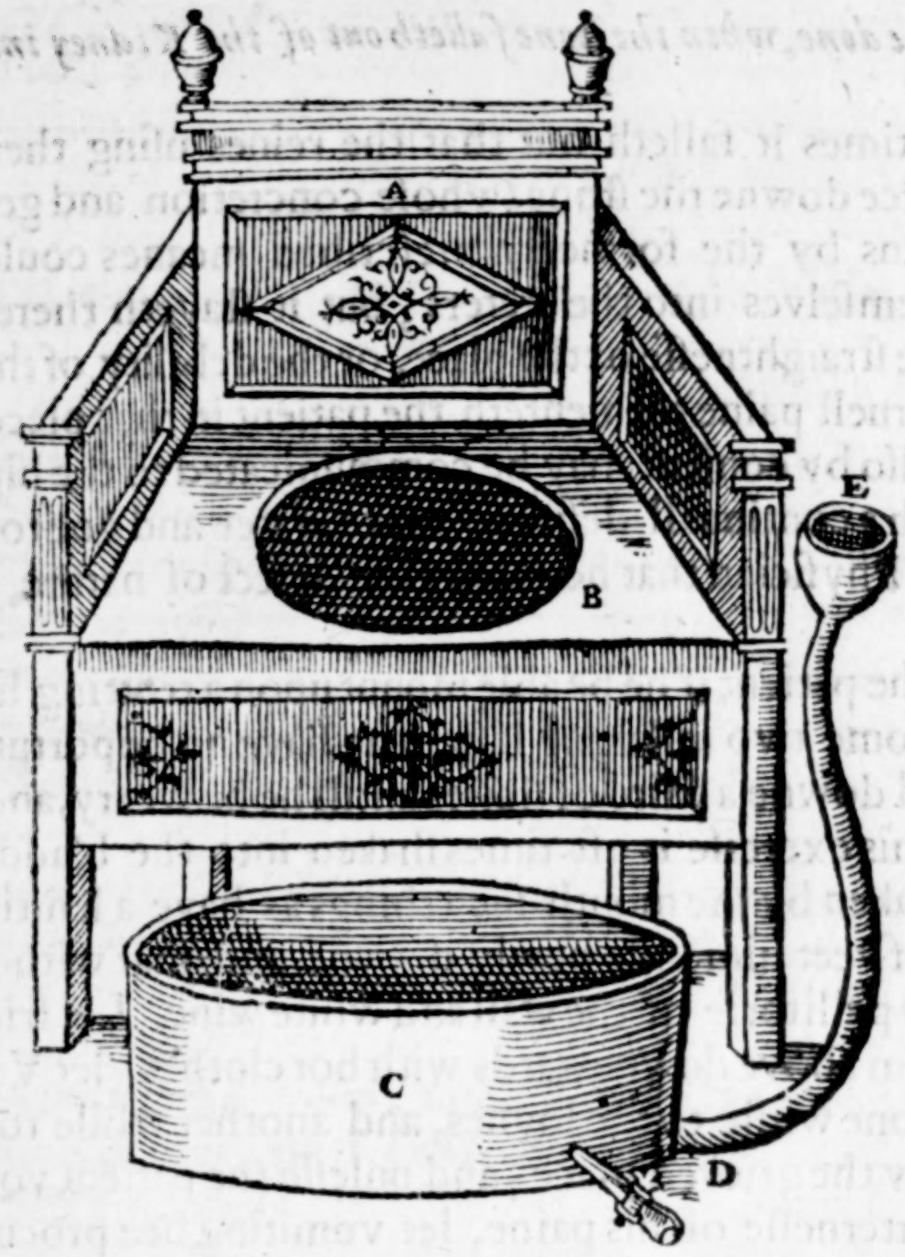
Signes of the ſtone ſtopping in the *ureter*.

Therefore let the patient if he be able mount upon a trotting horſe, and ride upon him the ſpace of ſome two miles, or if hee can have no opportunity to doe ſo, then let him run up and downe a paire of ſtaires untill he be weary, and even ſweat again ; for the ſtone by this exerciſe is oft-times ſhaken into the bladder ; then preſently ſhall be given or taken by the mouth ſuch things as have a lenitive and relaxing facultie, as oyle of ſweet almonds newly drawne and that without fire, and mixed with the water of pellitorie of the wall and white wine. Let frictions of the whole body be made from above downewards with hot clothes ; let Ventoſes with a great flame be applyed one while to the loynes, and another while to the bottome of the belly, a little below the grieved place ; and unleſſe the patient vomit of his owne accord, or by the bitterneſſe of his paine, let vomiting bee procured with a draught of water and oile luke warme ; for vomiting hath much force to drive downe the ſtone, by reaſon of the compreſſion of the parts, which is cauſed by ſuch an endeavour : laſtly, if the ſtone deſcend not by the power of theſe remedies, then the patient muſt bee put into a *Semicupium*, that is, a Halfe-bath, made of the following decoction. ℞. *malvæ, biſmal. cum toto an.* m.ii. *beton. naſturt. ſaxifrag. berul. parietar. violar. an.* m.iii. *ſemin. melonum, milii ſolis, alkekengi an.* ʒvi. *cicer. rub* ℔.i. *rad. appii, gram. fœniculi, & eryngii, an.* ℥iiii. *in ſufficienti quantitate aquæ pro inceſſu ; coquantur iſta omnia incluſa ſacco* ; herein let the patient ſit up to the navell : neither is is fit that the patient tarry longer in ſuch a bath than is requiſite, for the ſpirits are diſſipated, and the powers reſolved by too long ſtay therein. But on the contrary, if the patient remaine as long as is ſufficient in theſe rightly made, the paine is mitigated, the extended parts relaxed, and the paſſages of urine opened and dilated, and thus the ſtone deſcendeth into the bladder. But if it be not moved by this meanes any thing at all out of the place, and that the ſame totall ſuppreſſion of urine do as yet remaine, neither before the patient entred into the bath the putting of a *Cathæter* into the bladder did any thing availe, yet notwithſtanding he ſhall try the ſame againe after the patient is come out of the bath, that hee may bee throughly ſatisfied whether peradventure there may bee any other thing in theſe firſt paſſages of the yard and neck of the bladder, which may with-hold the urine ; for the *Cathæter* will enter farre more eaſily, the parts being relaxed by the warmeneſſe of the bath : then inject ſome oyle of ſweet almonds with a ſyringe into the *Urethra* or paſſage of the yarde ; whilſt all theſe things are in doing, let not the patient come into the cold aire. But here I have thought good to deſcribe a chaire for a bath, wherein the patient may fitly ſit.

Remedies to force down the ſtone ſticking in the *ureter*.

A decoction for a bath.

The figure of a chaire for a Semicupium.



A. *Sheweth the whole frame of the Chaire.*
B. *The hole wherein the patient muſt ſit.*
C. *The Ciſterne that holds the water.*
D. *A Cocke to empty the water when it groweth cold.*
E. *A Funnell whereby to poure in warme water.*

An Anodine Cataplaſme.

Signes of the ſtone fallen out of the *ureter* into the bladder.

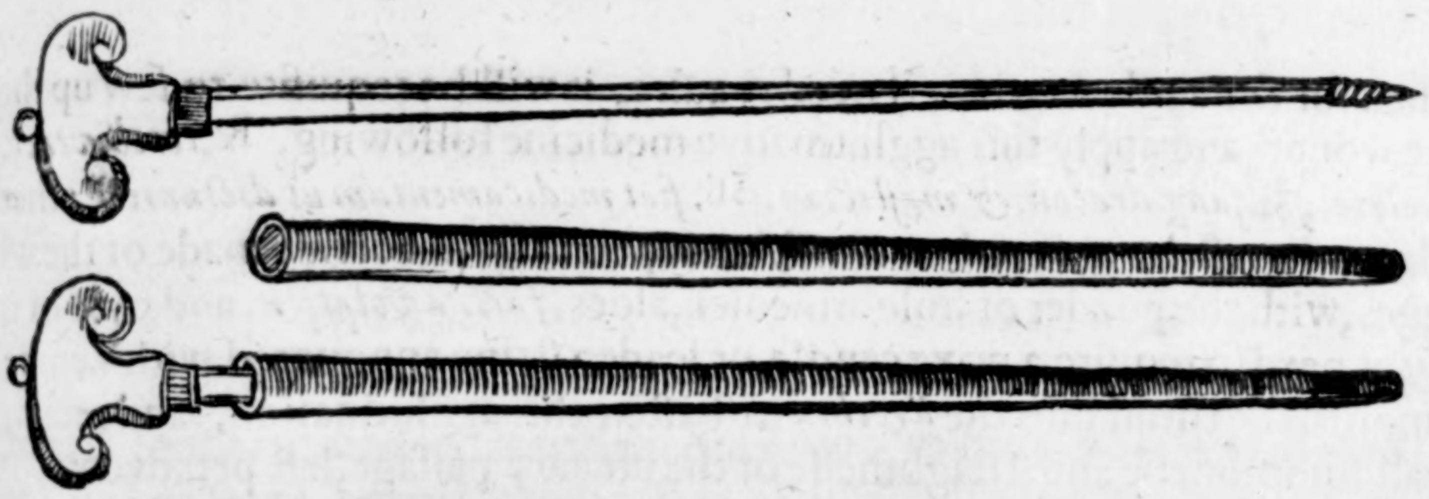
There may alſo be another decoction made for the bath, as thus: ℞. *rad. raph. alth. an.* ℔.ii. *rad. ruſc. petroſel. & aſparag. an.* ℔.i. *cumin. fœnicul. ameos an.* ℥iiii. *ſem. lini, fænug. an.* ʒvi. *fol. marub. parietar. florum chamæm. melil. anethi, an.* m.ii. *bulliant omnia ſecundum artem in aquæ ſufficienti, & vini albi odoriferi exigua quantitate ad conſumptionem tertiæ partis pro Semicupio.* Alſo the ſame decoction may bee uſed for gliſters, adding thereto two yolkes of egges, and foure ounces of oyle of lillies, with ʒi. of oile of Juniper, which hath a certaine force to aſſwage the paine of the ſtone and colick. But a farre leſſe quantity of the decoction in a gliſter muſt be uſed in theſe diſeaſes, than uſually is appointed in other diſeaſes; otherwiſe there will be danger leſt the guts being diſtended ſhould more preſſe upon the kidneys and ureters, troubled in ſome ſort with inflammation, and ſo increaſe the paine and other ſymptomes. This following cataplaſme ſhall be profitably applyed to the grieved place, to wit, the loynes or flankes and bottome of the belly, for it is very powerfull to aſſwage paine, and help forwards the falling downe of the ſtone. ℞. *rad. alth. & raphani, an.* ℥iiii. *pariet. fœnic. ſenecionis, naſturt. berul. an.* m. i. *herniariæ* m. ß. *omnibus in aqua ſufficienti decoctis, & deinde contritis, adde olei aneth. chamæm. & pingued. cuniculi, an.* ℥ii. *farin. cicer. quantum ſufficit, fiat cataplaſma ad uſum prædictum.* After by theſe means the ſtone forced out of the *ureter* is fallen into the bladder, the paine preſently (if there be but one ſtone, for ſometimes more with much gravell do againe fall into the *ureter)* is mitigated, and then the patient is troubled with an itching and pricking at the end of his yard and fundament. Therefore then unleſſe he bee very weake, it is fit that he ride and walk a foote, and take ʒiv. of *ſpecies Lithontribon* in foure doſes with white wine, or the broth of red Cicers three houres before dinner and ſupper. Beſides, let him plentifully drink good wine, and after he hath drunke, let him hold in his urine as long as he can; that ſo it being gathered in greater plenty, it may preſently thruſt the ſtone out of the bladder with the more force: for which purpoſe you may alſo inject the following liquor into the bladder. ℞. *ſyrupi capill. ven.* ℥i. *aquæ alkekengi* ℥iii. *olei ſcorpionum.* ℥ß. Let it bee injected into the bladder with a ſyringe.

Chap. XXXIX.

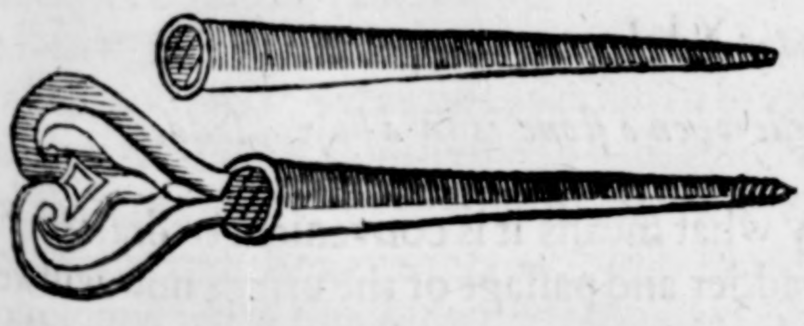
What muſt be done the ſtone being fallen into the necke of the bladder, or paſſage of the yard.

After the ſtone is fallen out of the capacity of the bladder, and ſtops in the necke thereof, or paſſage of the yard, the Surgeon ſhall have a ſpeciall care that he do not force or thruſt backe the ſtone from whence it came, but rather that he preſs it gently with his fingers to the end of the yard, the paſſage being firſt made ſlippery by injecting ſome oyle of ſweet almonds. But if it ſtop in the end of the *Glans*, it muſt bee plucked out with ſome crooked inſtrument; to which if it will not yeeld, a Gimblet with a pipe or caſe thereto, ſhall be put into the paſſage of the yard, and ſo it ſhall be gotten out, or elſe broken to pieces by the turning or twining about of the Gimblet, which I remember I have divers times attempted and done; for ſuch Gimblets are made with ſharpe ſcrewes, like ordinary Gimblets.

The delineation of a Gimblet made to breake the ſtones in the paſſage of the yard, together with its pipe, or caſe.



The effigies of another leſſer Gimblet.



Verily what Gimblets ſoever are made for this buſineſſe, their body nor point muſt bee no thicker than a ſmall probe; leſt whilſt they are forced or thruſt into the *urethra*, or urinary paſſage, they might hurt the bodies next unto them by their violent entrance.

Chap. XL.

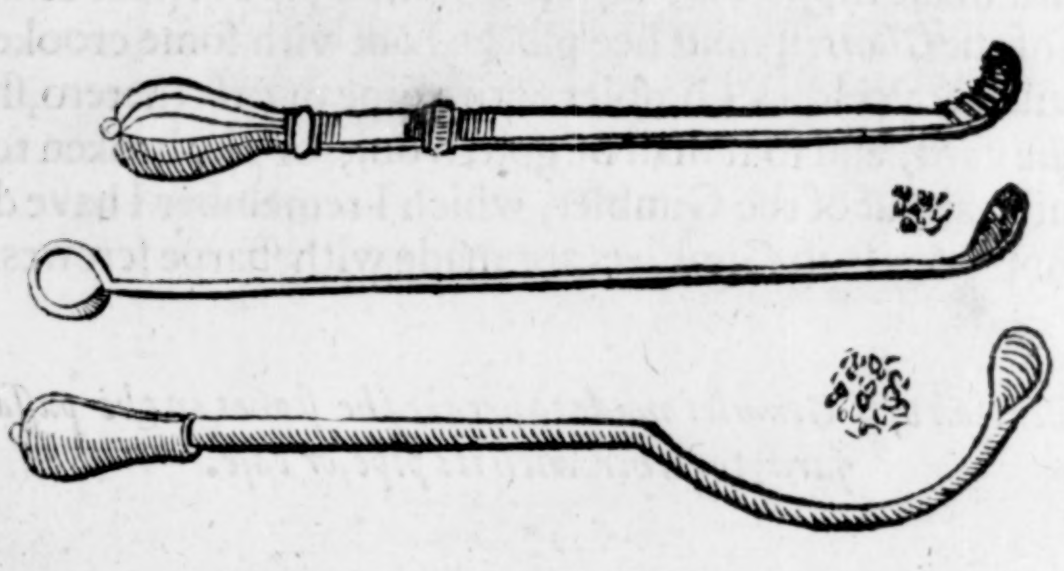
What courſe muſt be taken, if the ſtone ſticking in the Urethra *or urinary paſſage, cannot be gotten out by the fore-mentioned arts.*

But if the ſtone be more thicke, hard, rough and remote from the end of the yard, than that it may be gotten out by the meanes formerly mentioned in the precedent chapter, and if that the urine be wholly ſuppreſt therewith, then muſt you cut the yard upon the ſide with a ſtreight wound: for you muſt not make inciſion on the upper part for feare of a fluxe of blood, for a large veine and artery lyeth thereunder; nor in the lower part, for

When the yard may be ſafely cut.

for ſo it would ſcarce ever heale againe, for that it is a bloodleſſe part, and beſides, the continuall and acride falling of the urine would hinder the agglutination: wherefore the inciſion muſt be made on the ſide, on that part whereas the ſtone moſt reſiſts and ſwels out. For that part is the more fleſhie; yet firſt the end of the skin of the prepuce muſt be much drawn up ſo to cover the *Glans*, which being done, the *Urethra* ſhall be tyed with a threed a little above the ſtone, that ſo the ſtone may be ſtayed there, and may not fall back againe. Therefore then, inciſion being made, the ſtone muſt be taken forth, and the skin which was drawne more violently to cover the *Glans* is to be let goe backe againe; for ſo it will come to paſſe that a whole part of the skin may cover the cut yard, and ſo it may be the more ſpeedily united and the urine may naturally flow out. I have by this meanes oft-times taken forth the ſtone with the inſtruments here delineated.

Inſtruments fit to take the ſtone forth of the opened Urethra, *or urenary paſſage of the yard.*



An agglutinative medicine.

Then for the agglutination, if need require, it will be requiſite to ſew up the lips of the wound, and apply this agglutinative medicine following. ℞. *tereb. venet.* ℥iiii. *gum. elemi*, ℥i. *ſang. dracon. & maſtic. an.* ʒß. *fiat medicamentum ut dictum eſt*: then the whole yard muſt be covered over with a repercuſſive medicine made of the whites of egges, with the pouder of bole armenick, aloes, *farina volatilis*, and oyle of roſes. Laſtly, if need ſo require, a waxe candle, or leaden ſtring annoynted with Venice turpentine ſhall be thruſt into the *Urethra* to haſten the agglutination, and retaine the naturall ſmoothneſſe and ſtreightneſſe of the urenary paſſage, leſt peradventure a caruncle grow therein.

How to haſten the agglutination.

Chap. XLI.

What manner of ſection is to be made when a ſtone is in a boyes bladder.

Why the boy muſt be ſhaken before cutting.

How to place the child before diſſection.

Hitherto we have ſhewed, by what means it is convenient to draw ſmall ſtones out of the ureter, bladder and paſſage of the urine; now will we briefly ſhew the manner of taking of greater ſtones out of the bladder, which is performed by inciſion and iron inſtruments, and I will deliver the practice thereof firſt in children, then in men, and laſtly in women. Firſt therefore let the Surgeon take the boy (upon whom it is determined the worke ſhall be performed) under the arme holes, and ſo give him five or ſixe ſhakes, that ſo the ſtone may deſcend the more downewards to the neck of the bladder. Then muſt you cauſe a ſtrong man ſitting upon a high ſeat to lay the child upon his backe with his face from himward, having his hips lying upon his knees. The child muſt lye ſomewhat high that he may breathe the freelier, & let not the nervous parts be too much ſtretched, but let all parts be looſe and free for the drawing forth of the ſtone. Furthermore, it is fit that this ſtrong man, the childs legges being bended backe, wiſh the child, that putting his legs to his hams, that he draw them up as much as he can, & let the other be ſure he keep them ſo; for this ſite of the child much

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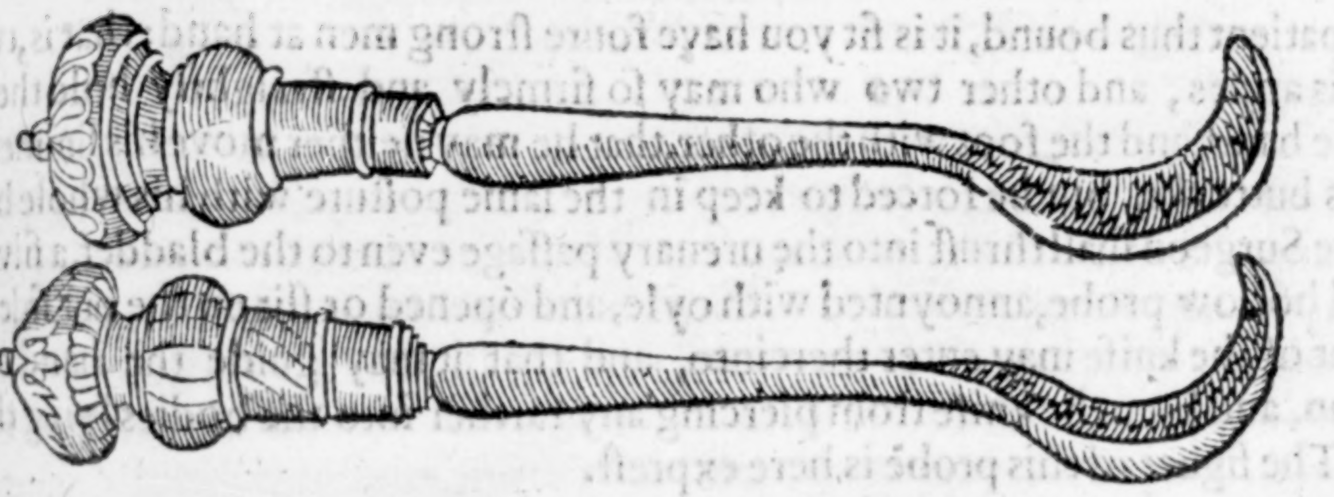
conduceth to well performing of the worke. Then let the Surgeon thruſt two of the fingers of his left hand as farre into the childs fundament as hee is able; but let him with his other hand preſſe the lower belly, firſt wrapping a cloth about his hand, that ſo the compreſſion may be the leſſe troubleſome, and leſt inflammation ſhould happen rather by this meanes than by the inciſion. Now the compreſſion hath this uſe, to cauſe the ſtone deſcend out of the bottome of the bladder into the neck thereof under the *os pubis*, whither after it is arrived, it muſt be there kept, & as it were governed by the command of your hand, leſt it ſhould ſlide from that place whereto you have brought it. Theſe things thus done, nothing now remaineth, but that the Surgeon, with a wound ſome two fingers breadth diſtant from the fundament, cut through all the fleſh even to the ſtone on the left ſide of the *perinæum*. But in the interim, let him beware that he hurt not the *inteſtinum rectum*; for it may, and uſually doth happen, that whileſt the ſtone is brought out of the bottome of the bladder to the neck thereof, this gut is doubled in: now if it bee cut with your inciſion knife, it commeth to paſſe that the excrements may ſometimes come out at the wound, and the urine by the fundament, which thing hath in many hindred the agglutination and conſolidation of the wound; yet in ſome others it hath done little harme, becauſe in this tender age many things happen, which may ſeeme to exceed nature: the inciſion being made, the ſtone muſt bee plucked forth with the inſtrument here expreſſed.

Where to divide the *perinæum*.

Nature very powerfull in children.

Hookes to pull ſtones forth of childrens bladders.



The ſtone being drawne out, a ſmall pipe ſhall be put into the wound, and there kept for ſome ſpace after, for reaſons hereafter to bee delivered; then his knees ſhall bee bound together, for thus the wound will the ſooner cloſe and bee agglutinated. The reſidue of the cure ſhall be performed by reducing the generall cure of wounds, to the particular temper of the childs age, and the peculiar nature of the child in cure.

Generall rules muſt be reduced to particular bodies.

Chap. XLII.

How to cut men, for the taking out of the ſtone in the bladder.

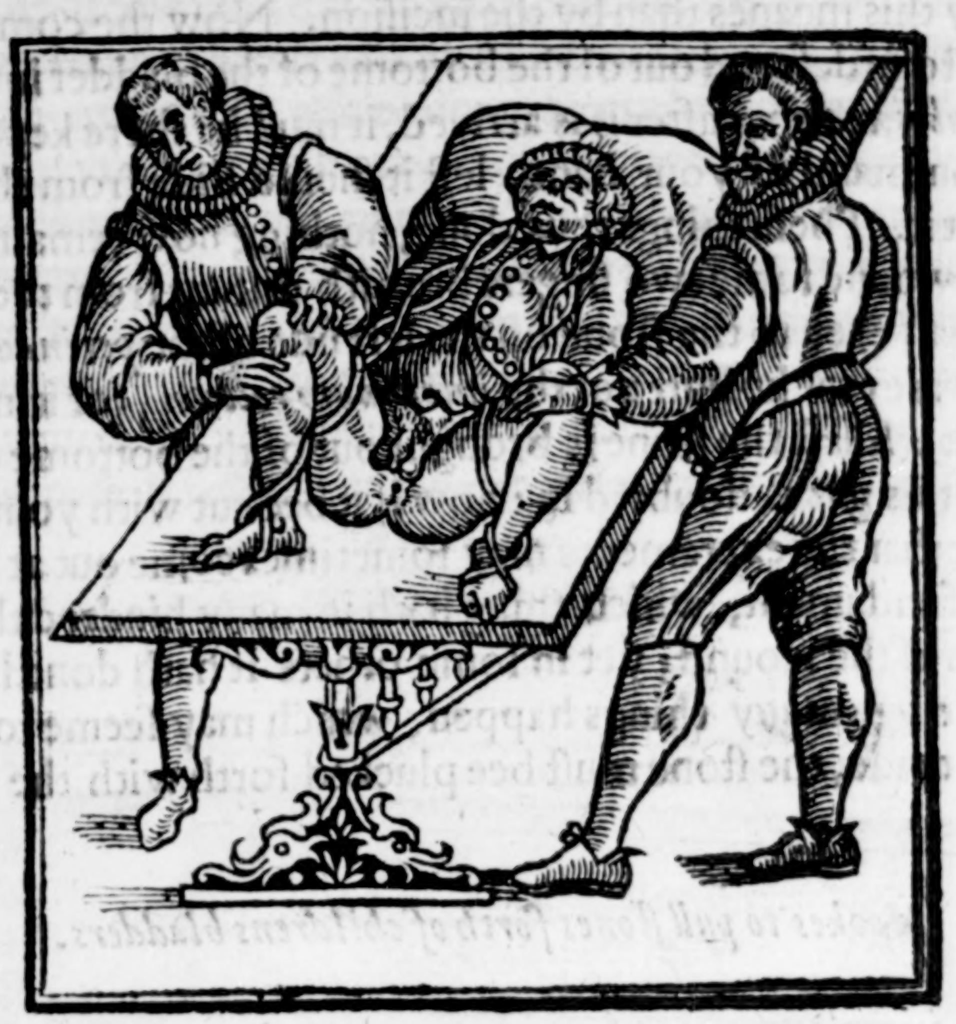
SEing wee cannot otherwiſe helpe ſuch men as have ſtones in their bladders, we muſt come to the extreme remedy, to wit, cutting. But the patient muſt firſt be purged, and if the caſe require, draw ſome bloud; yet muſt you not immediately after this, or the day following haſten to the work, for the patient cannot but be weakened by purging & bleeding. Alſo it is expedient for ſome daies before to foment the privities with ſuch things as relaxe and ſoften, that by their yeelding, the ſtone may the more eaſily be extracted. Now the cure is thus to be performed; The patient ſhall be placed upon a firm table or bench with a cloth many times doubled under his buttocks, and a pillow under his loynes & back, ſo that he may lie halfe upright with his thighs lifted up, and his legs and heels drawn back to his buttocks. Then ſhall his feet be bound with a ligature of three fingers breadth caſt about his ankles, and with the heads thereof being drawn upwards to his neck, and caſt a-

What to bee done before diſſection.

How to lay the patient.

bout it, and ſo brought downewards, both his hands ſhall bee bound to his knees, as the following figure ſheweth.

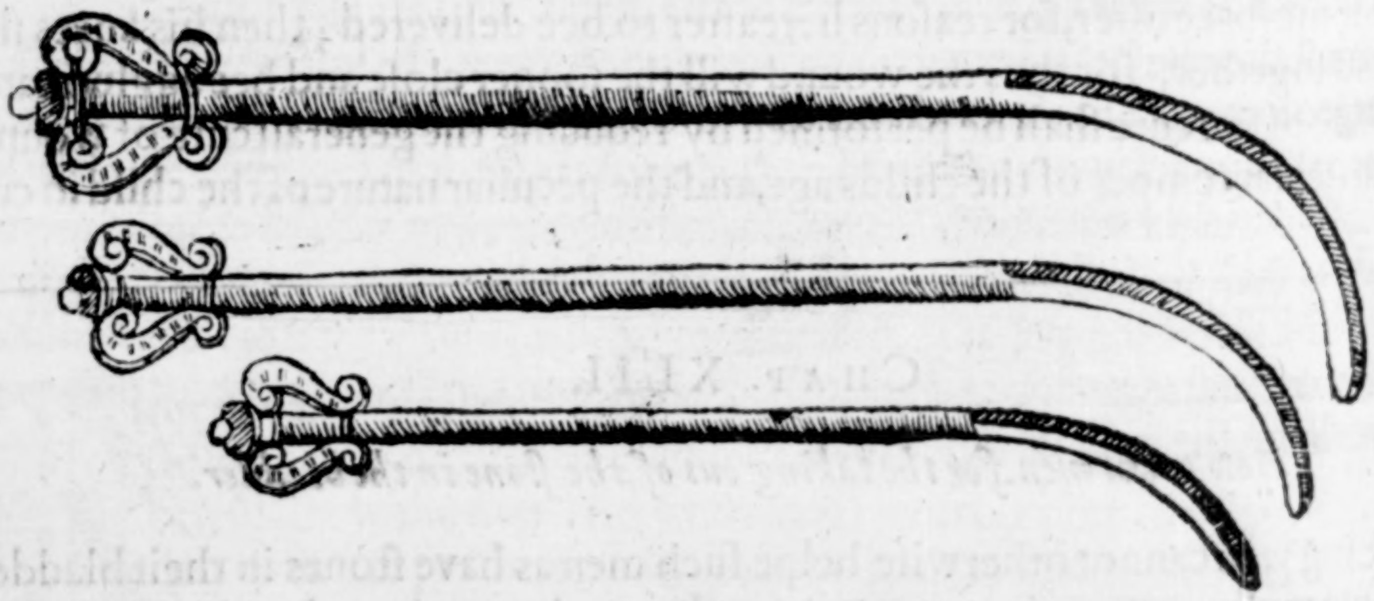
The figure of a man lying ready to be cut for the ſtone.



The patient thus bound, it is fit you have foure ſtrong men at hand; that is, two to hold his armes, and other two who may ſo firmely and ſtraightly hold the knee with one hand, and the foot with the other, that he may neither move his limmes, nor ſtirre his buttocks, but be forced to keep in the ſame poſture with his whole body. Then the Surgeon ſhall thruſt into the urenary paſſage even to the bladder, a ſilver or iron and hollow probe, annoynted with oyle, and opened or ſlit on the out ſide, that the point of the knife may enter thereinto, and that it may guide the hand of the workman, and keep the knife from piercing any farther into the bodies lying thereunder. The figure of this probe is here expreſt.

Why the probe muſt be ſlit on the out-ſide.

Probes with ſlits in their ends.



Why the ſeame of the *perinæum* muſt not be cut.

He ſhall gently wreſt the probe, being ſo thruſt in, towards the left ſide, and alſo he who ſtandeth on the patients right hand, ſhall with his left hand gently lift up his Cods, that ſo in the free and open ſpace of the left ſide of the *perinæum*, the Surgeon may have the more liberty to make the inciſion upon the probe which is thruſt in and turned that way. But in making this inciſion, the Surgeon muſt be carefull that he hurt not the ſeame of the *perinæum* and fundament. For if that ſeame bee cut, it will not be eaſily conſolidated, for that it is callous and bloudleſſe, therefore the urine would continually drop forth this way. But if the wound be made too neare the fundament, there is danger, leſt by forcible plucking forth of the ſtone he may break ſome of the hæmorrhoide veins, whence a bleeding may enſue, which is ſcarce to be ſtopped e bound to his knees, as

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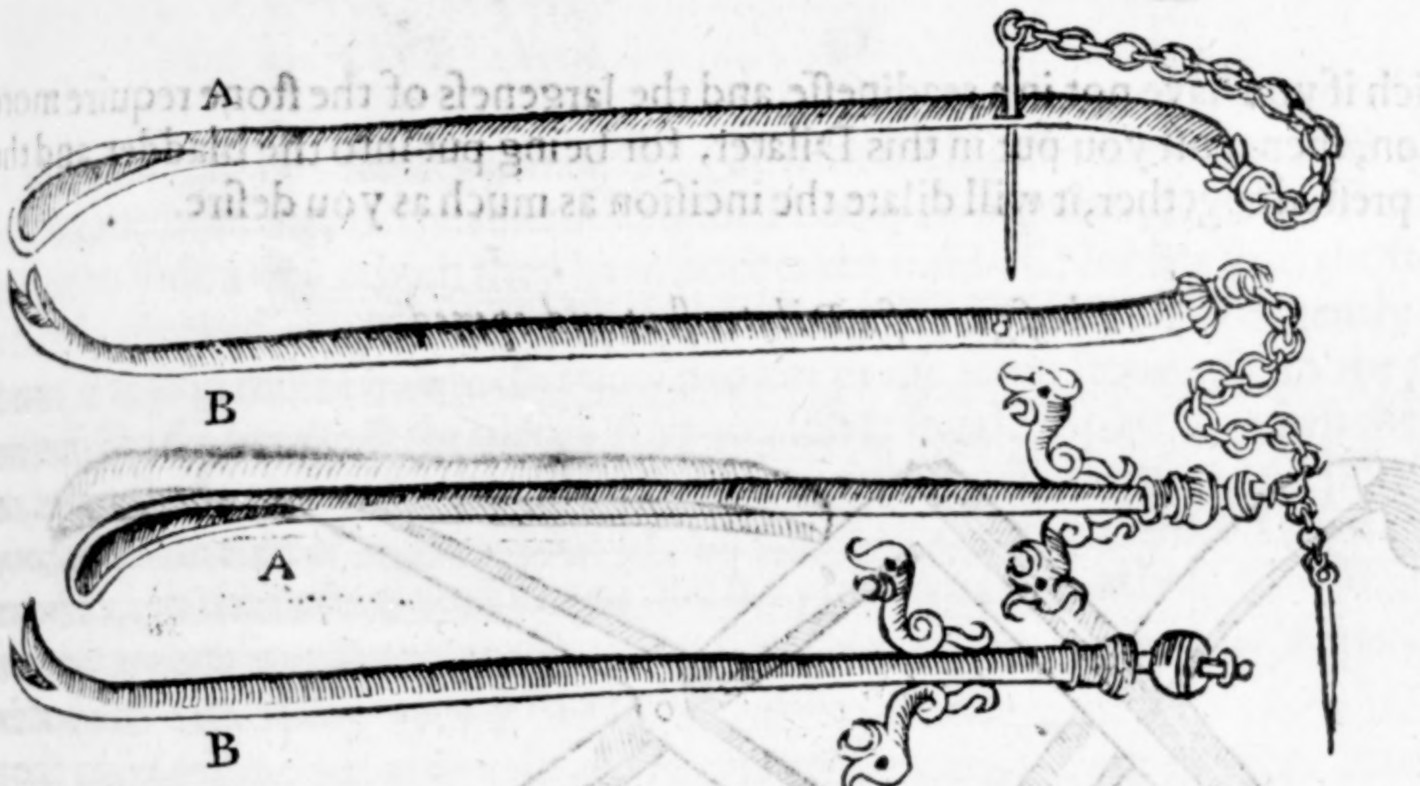
ſtopped by any meanes, or that hee may rend the *ſphincter* muſcle, or body of the bladder, ſo that it can never be repaired. Therefore it muſt be made the ſpace of two fingers from the fundament, according to the ſtraightneſſe of the fibres, that ſo it may be the more eaſily reſtored afterwards. Neither muſt the inciſion thus made, exceed the bigneſſe of ones thumbe, for that it is afterwards enlarged by putting in the Crowes beake and the dilater, but more by the ſtone as it is plucked forth. But that which is cut, is neither ſo ſpeedily nor eaſily healed up, as that which is torne. Then preſently put into the wound ſome one of theſe ſilver inſtruments delineated here below, and called by the name of Guiders, for that they ſerve as guides to the other inſtruments which are to be put into the bladder; theſe are made with a round & prominent head, whereby it may bee put into the deſcribed cavity of the probe, and they are noted by theſe letters A. A. then there are others marked with the letters B. B. and called by the like name, and are to be put under the former, being made forked at the end, that ſo it may, as it were, embrace the end of the former.

Where to make the wound to take forth the ſtone.

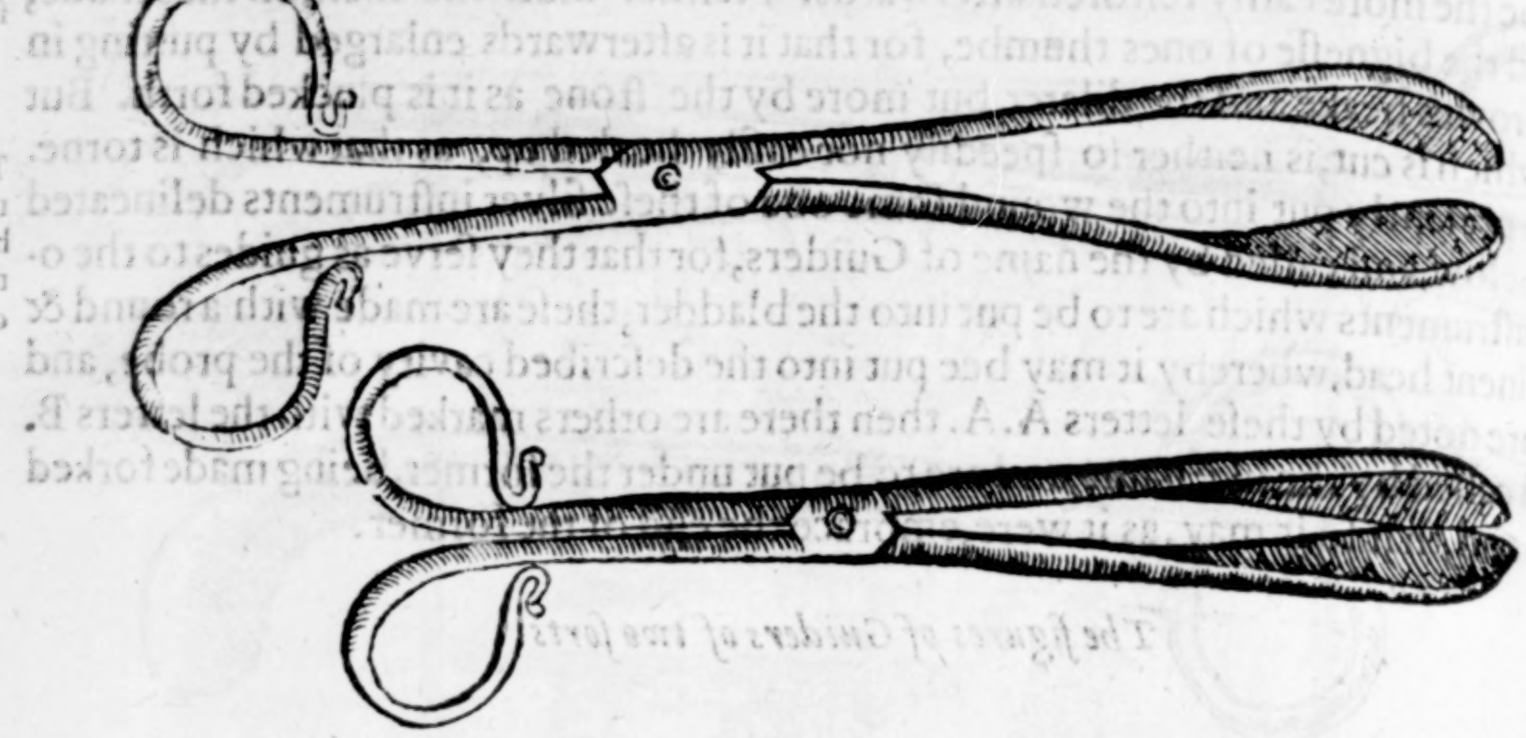
That which is torne is ſooner healed than that which is cut.

The figures of Guiders of two ſorts.



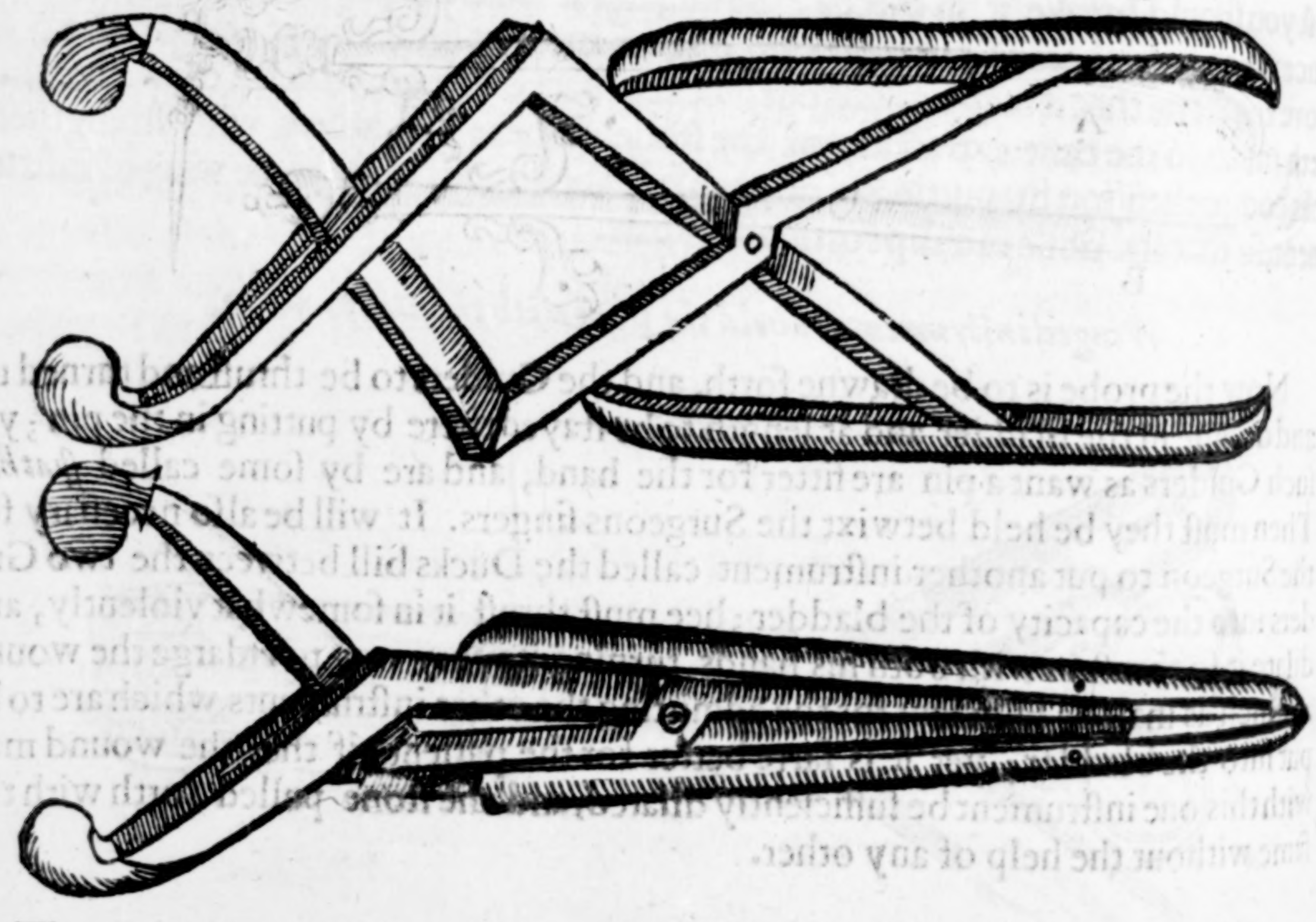
Now the probe is to be drawne forth, and the Guiders to be thruſt and turned up and downe in the bladder, and at length to be ſtayed there by putting in the pin; yet ſuch Guiders as want a pin are fitter for the hand, and are by ſome called *ſpathæ*. Then muſt they be held betwixt the Surgeons fingers. It will be alſo neceſſary for the Surgeon to put another inſtrument called the Ducks bill between the two Guiders into the capacity of the bladder; hee muſt thruſt it in ſomewhat violently, and dilate it ſo thruſt in with both his hands, turning it every way to enlarge the wound as much as ſhall be ſufficient for the admitting the other inſtruments which are to be put into the bladder; yet it is farre better for the patient, if that the wound may with this one inſtrument be ſufficiently dilated, and the ſtone pulled forth with the ſame without the help of any other.

The effigies of an inſtrument called a Ducks bill.



Which if you have not in a readineſſe, and the largeneſs of the ſtone require more dilatation, then muſt you put in this Dilater, for being put into the bladder, and the handle preſſed together, it will dilate the inciſion as much as you deſire.

The figure of a Dilater ſhut and opened.



The wound by the helpe of this inſtrument being dilated as much as is ſufficient, then put in the ſtreight Ducks-bill before deſcribed, or the crooked here expreſt.

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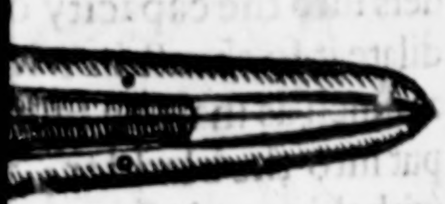

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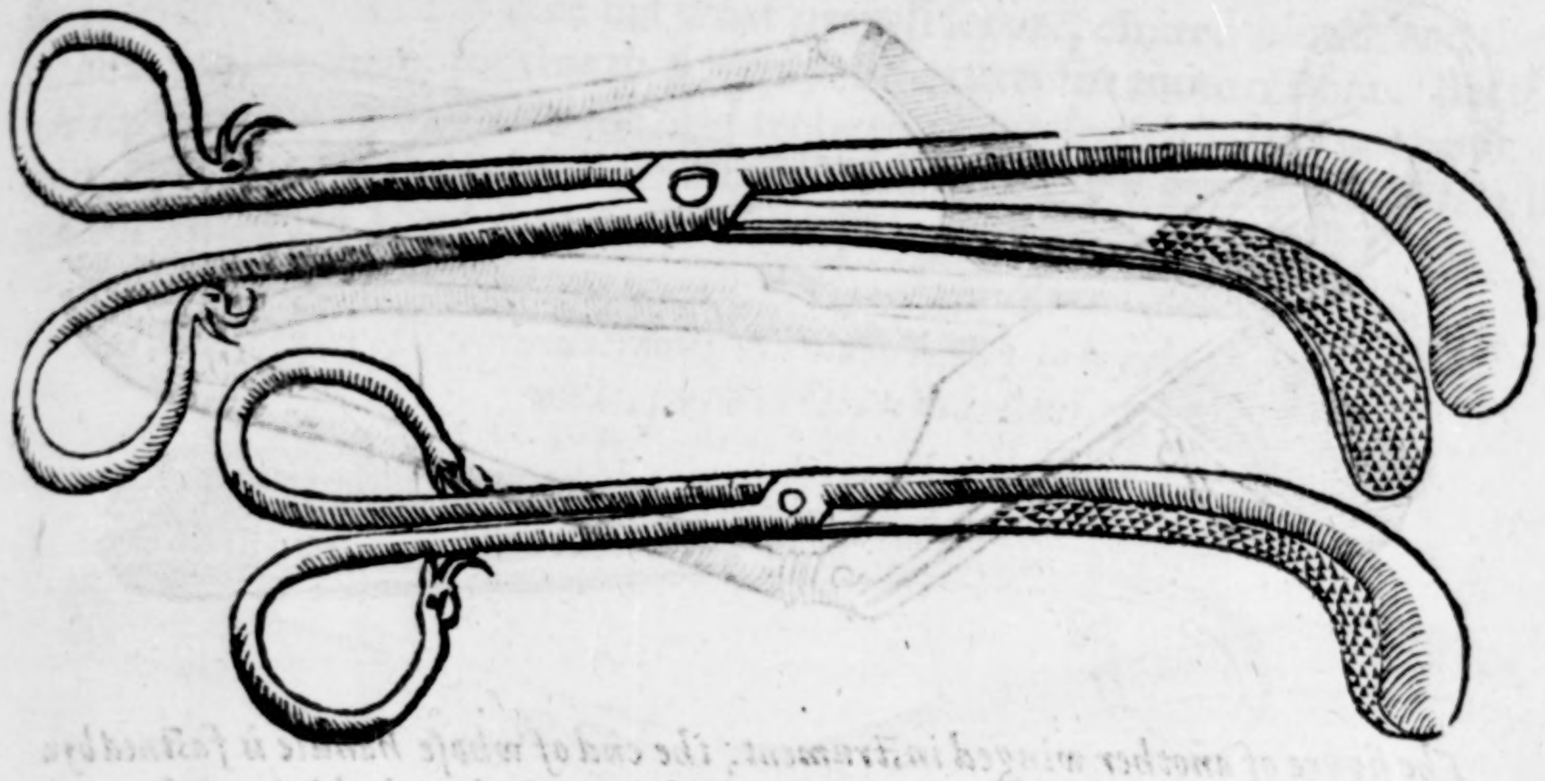
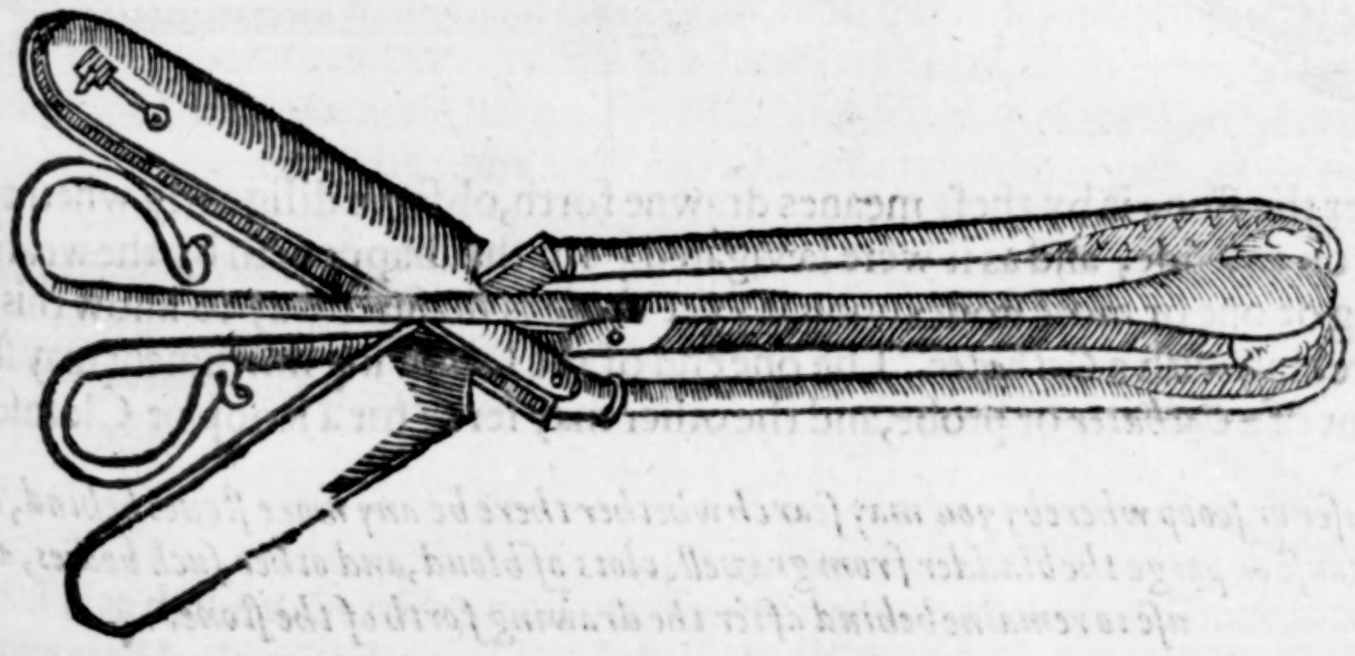
Crooked Forcipes *like a Ducks-bill.*

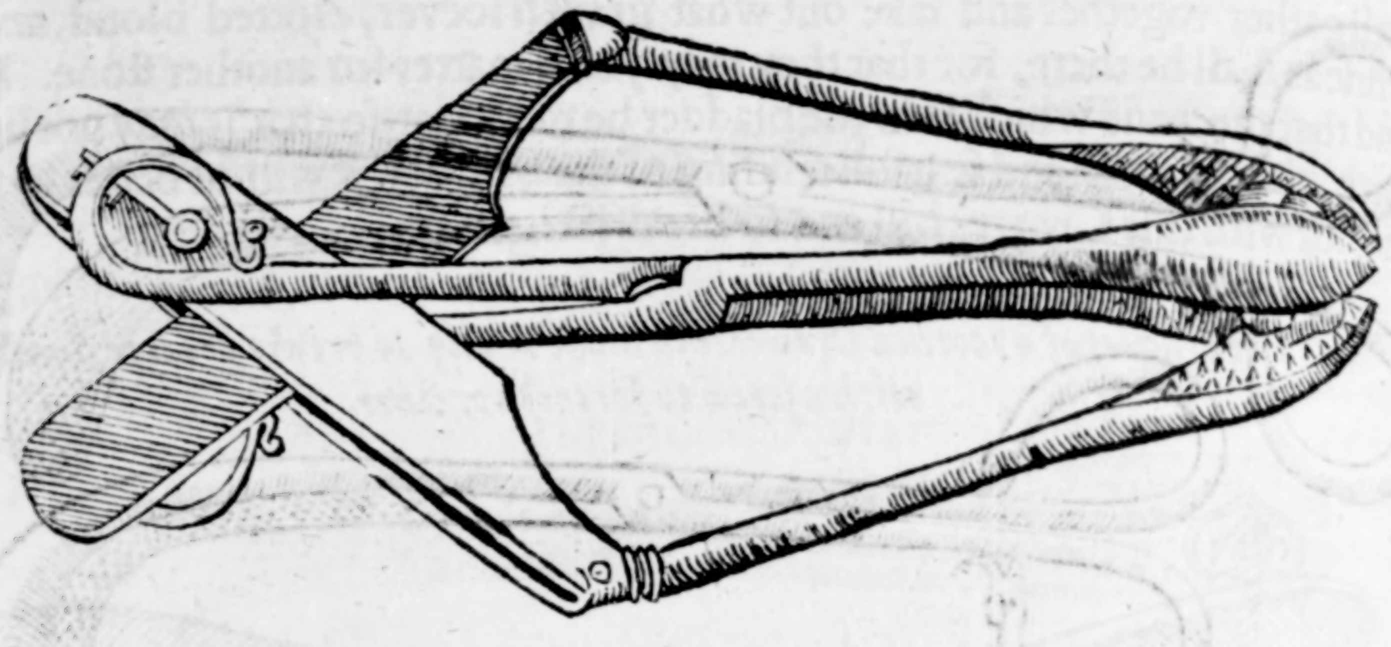


The ſtone may be ſought & taken hold of with theſe inſtruments, and being taken hold on, the branches of the inſtrument ſhall bee tyed together, leſt they ſhould ſuffer that to ſlide away which they have once taken hold of. Neither ſhall the ſtone be ſuddenly plucked out, but eaſily ſhaken too & again, and at the length gently drawn forth. Yet you muſt beware that you doe not preſſe it too ſtraightly in the *forceps*, leſt you ſhould breake it in pieces: Some, leſt it ſhould ſlip away, when they have once taken hold thereof, put their two fingers into the fundament, and put them above the ſtone that it may not fall out, nor ſlip backe againe, which I thinke conduceth much to the eaſie extraction of the ſtone. There are others who ſtrengthen this comprehenſion by putting in on each ſide above and below theſe winged inſtrument, ſo that the ſtone can ſlip forth on no ſide.

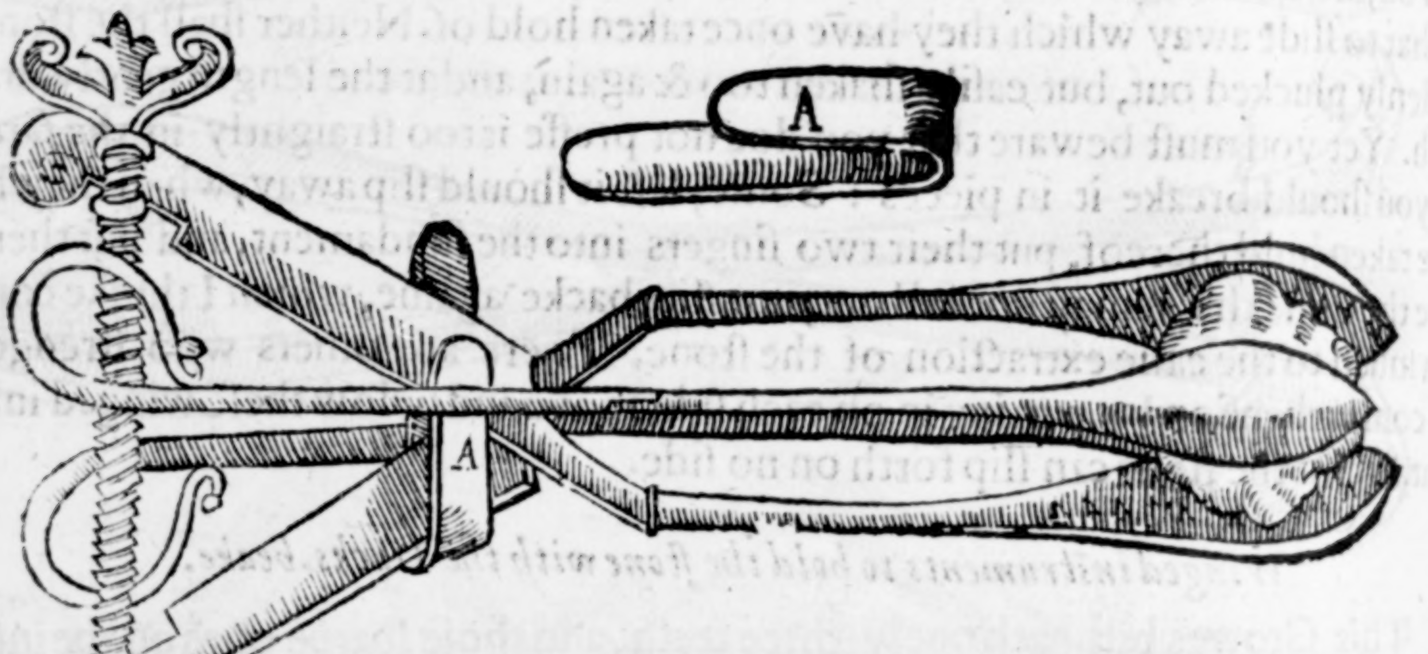
Winged inſtruments to hold the ſtone with the Ducks-beake.



The figure of another.



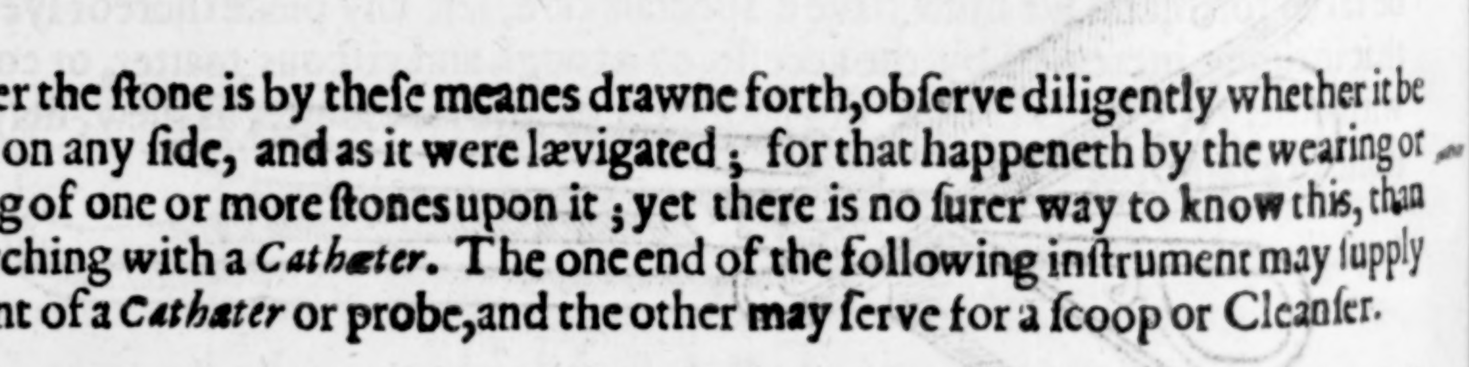
The figure of another winged instrument, the end of whoſe handle is faſtned by a ſcrew, as alſo a bended iron plate which is marked with this letter A. *for the firmer holding thereof.*



After the ſtone is by theſe meanes drawne forth, obſerve diligently whether it be worne on any ſide, and as it were lævigated; for that happeneth by the wearing or rubbing of one or more ſtones upon it; yet there is no ſurer way to know this, than by ſearching with a *Cathæter*. The one end of the following inſtrument may ſupply the want of a *Cathater* or probe, and the other may ſerve for a ſcoop or Cleanſer.

A note of more ſtones than one.

A cleanſer or ſcoop whereby you may ſearch whether there be any more ſtones behind, as alſo cleanſe or purge the bladder from gravell, clots of bloud, and other ſuch bodies, as uſe to remaine behind after the drawing forth of the ſtone.

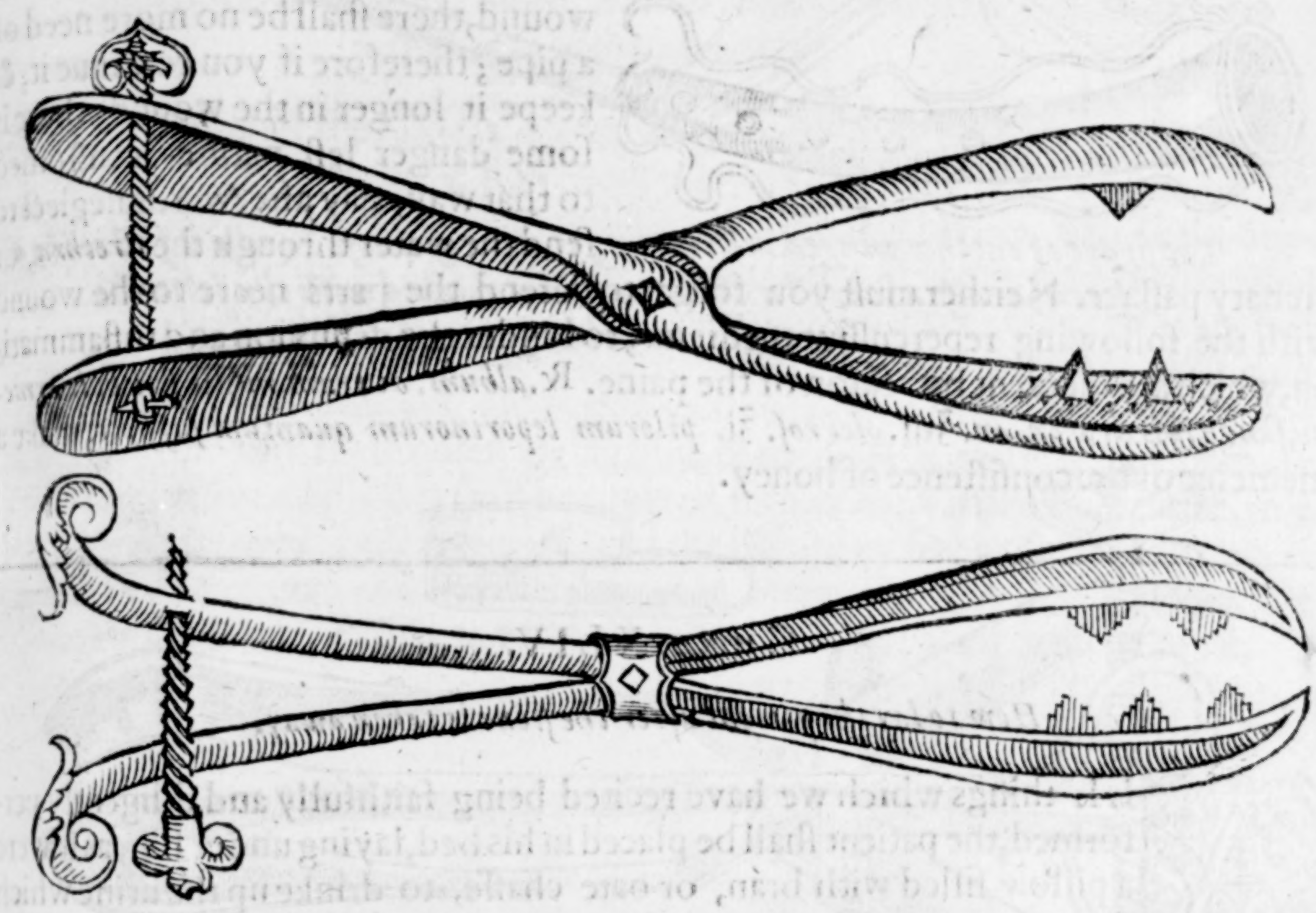


How to cleanſe the bladder.

For if other ſtones remaine behinde, they ſhall bee drawne forth as the former, which being done, the end of the inſtrument, which is crooked and hollowed like a ſcoop or ſpoone, ſhall bee thruſt by the wound into the bladder, and therewith you ſhall gather together and take out what gravell ſoever, clotted bloud, and the like refuſe as ſhall be there, for that they may yeeld matter for another ſtone. But if you find that the ſtone which is in the bladder be too great, ſo that it may not be plucked forth without great and fearfull rending of the bladder, it will be better to take hold thereof with this Crowes bill and ſo break it to peeces.

How to breake a ſtone that cannot be taken out whole and at once.

The effigies of a toothed Crowes-bill made neatly to breake greater ſtones, with a ſcrew to force it together.



This Crowes bill hath onely three teeth, and thoſe ſharpe ones on the inſide, of which two are placed above, and one below, which is the middle-moſt, ſo that it falleth between the two upper. When the ſtone is broken, all the peeces thereof muſt be taken forth, and we muſt have a ſpeciall care, leſt any piece thereof lye hid; for that in time, increaſed by the acceſſe of a tough and viſcous matter, or conjoyned with other fragments by the interpoſition of the like matter as glew, may riſe to a ſtone of a large bigneſſe.

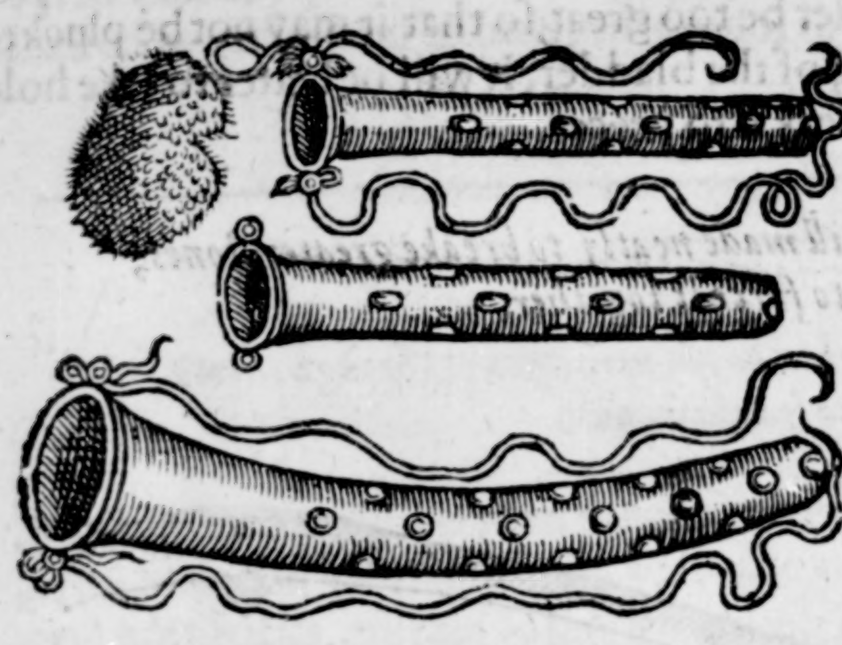
CHAP. XLIII.

What cure muſt be uſed to the wound, when the ſtone is taken forth.

Of ſewing the wound when the ſtone is taken forth.

THE ſtone being drawne out, if the greatneſſe of the wound ſo require, it ſhall have one or two ſtitches with a needle and threed, leaving onely ſo much ſpace as ſhall be ſufficient to put in a pipe for the uſe we ſhall hereafter ſhew; your threed muſt be of crimſon ſilke waxed, and let it not be too ſmall, leſt it by binding ſhould cut aſunder the fleſhy lips of the wound, or rot in a ſhort time, either by the moyſture of the urine, or matter flowing from the ulcer. Therefore you ſhall take up much fleſh with the skin in ſewing it, leſt the lips of the wound being torne, your labour prove in vaine, and ſo you are forced to trouble the patient with making a new one. Things being thus performed, a ſilver pipe ſhall be put through the wound into the bladder, whereof I have here given you divers forms, that you may take your choice, and ſo fit them to the wounds, and not the wounds to them, which oft-times in want of inſtruments the Surgeons are forced to doe, to the great harme of the patient.

Silver pipes to be put into the bladder when the ſtone is drawne out.



Theſe muſt have no holes in their ſides (as thoſe here expreſſed) but onely in their ends, that all the matter of the wound, and the filth gathered and concrete in the bladder may flow and bee carryed forth this way. When cleere urine ſhall beginne to flow out of the wound, there ſhall be no more need of a pipe; therefore if you continue it, & keepe it longer in the wound, there is ſome danger leſt nature accuſtomed to that way, may afterwards neglect to ſend the water through the *Urethra*, or urenary paſſage. Neither muſt you forget to defend the parts neare to the wound with the following repercuſſive medicine, to hinder the defluxion and inflammation, which are incident by reaſon of the paine. ℞.*album. ovorum.nu.*iii.*pul.boli armeni, ſanguinis dracon. an.* ℥iii. *olei roſ.* ℥i. *pilorum leporinorum quantum ſufficit*, make a medicine of the conſiſtence of honey.

A repercuſſive medicine.

CHAP. XLIV.

How to lay the patient after the ſtone is taken away.

ALL things which we have recited being faithfully and diligently performed, the patient ſhall be placed in his bed, laying under him as it were a pillow filled with bran, or oate chaffe, to drinke up the urine which floweth from him. You muſt have divers of theſe pillowes, that they may bee changed as neede ſhall require. Sometimes after the drawing forth of the ſtone, the bloud in great quantity falleth into the Cod, which unleſſe you be carefull to provide againſt, with diſcuſſing, drying, and conſuming medicines, it is to be feared, that it may gangrenate. Wherefore if any accidents happen in curing theſe kinde of wounds, you muſt diligently withſtand them. After ſome few daies a warme injection ſhall be caſt into the bladder by the wound, conſiſting of the waters of plantain, night-ſhade & roſes, with a little ſyrupe of dried roſes. It wil help to temper the heat of the bladder cauſed both by the wound and contuſion, as alſo by the violent thruſting in of the inſtruments. Alſo it ſometimes happens, that after the drawing forth of the ſtone, clots of bloud and other impurity may fall into the urenary paſſage, and ſo ſtop the urine that it cannot flow forth. Therefore you muſt in like ſort put a hollow probe for ſome daies into the *urethra*, that keeping the paſſage open, all the groſſer filth may flow out together with the urine.

Remedies for the Cod, leſt it gangrenate.

CHAP. XLV.

How to cure the wound made by the inciſion.

What things haſten the union.

YOu muſt cure this wound after the manner of other bloody wounds, to wit, by agglutination and cicatrization, the filth, or ſuch things as may hinder, being taken away by detergent medicines. The patient ſhall haſten the agglutination if hee lye croſſe-legged, and keep a ſlender diet untill the ſeventh or ninth day be paſt. Hee muſt wholly abſtaine from wine, unleſſe it bee very weak; in ſtead thereof let him uſe a decoction of barly and licoriſh, or mead, or water and ſugar, or boyled water mixed with ſyrups of dryed roſes, maidenhaire, and the like. Let his meat bee ponado, raiſons, ſtewed prunes, chickens boiled, with the cold ſeeds, lettuce, purſlaine, ſorrell, borage, ſpinage, and the like. If he be bound in his belly, a Phyſitian ſhall be called, who may helpe it, by appointing either *Caſsia*, a gliſter, or ſome other kind of medicine, as he ſhall thinke good.

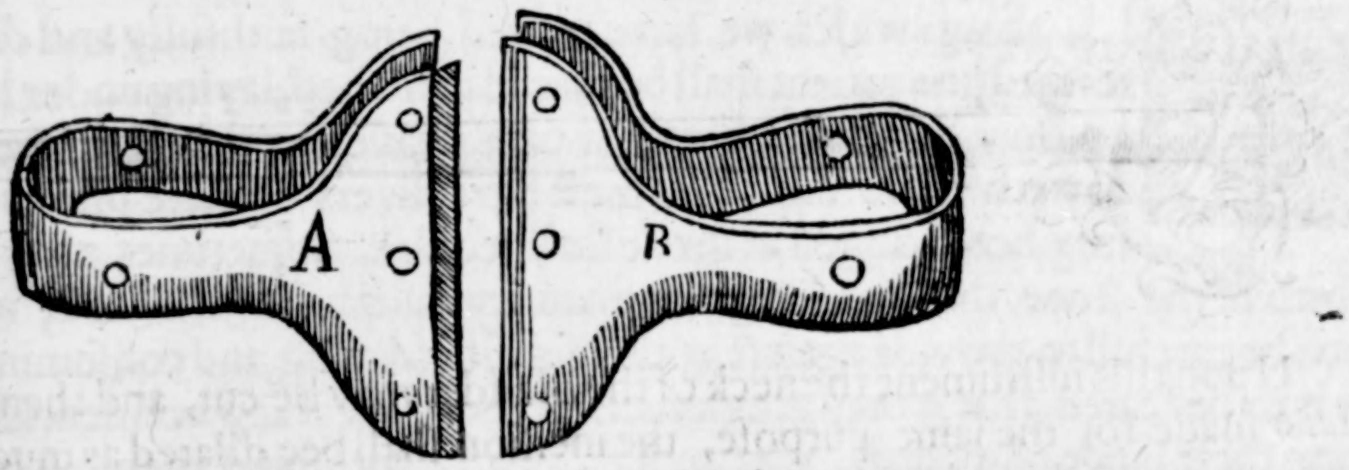
Chap. XLVI.

What cure is to be uſed to Ulcers, when as the urine flowes through them, long after the ſtone is drawne out.

How to make a freſh wound of an old ulcer.

Many after the ſtone is drawne out, cannot have the ulcer conſolidated, therefore the urine flowes out this way continually by little and little, and againſt the patients will during the reſt of his life, unleſſe the Surgeon helpe it. Therefore the callous lippes of the wound muſt be amputated, ſo to make a green wound of an old ulcer; then muſt they bee tyed up, and bound with the inſtrument wee terme a *Retinaculum* or ſtay; this muſt be perforated with three holes, anſwering to three other on the other ſide, needles ſhall be thruſt through theſe holes, taking hold of much fleſh, and ſhall be knit about it: then glutinative medicines ſhall be applyed, ſuch as are Venice Turpentine, gum *Elemi*, *ſanguis Draconis*, bole armenick, and the like; after five or ſixe dayes the needles ſhall bee taken out, and alſo the ſtay taken away. For then you ſhall finde the wound almoſt glewed, and there will nothing remaine but onely to cicatrize it.

The figure of a Retinaculum *or Stay.*



A. ſhewes the greater. B. the leſſer, that you may know that you muſt uſe divers according to the different bigneſſe of the wound.

What to doe in want of a ſtay.

If a *Retinaculum* or ſtay be wanting, you may conjoyne the lippes of the wound after this following manner. Put two quilles ſomwhat longer than the wound, on each ſide one, and then preſently thruſt them through with needles having thread in them, taking hold of the fleſh between, as often as need ſhall require, then tying the thread upon them. For thus the wound ſhall be agglutinated, and the fleſhy lips of the wound kept from being torne, which would be in danger if the needle & thread were onely uſed.

Chap.

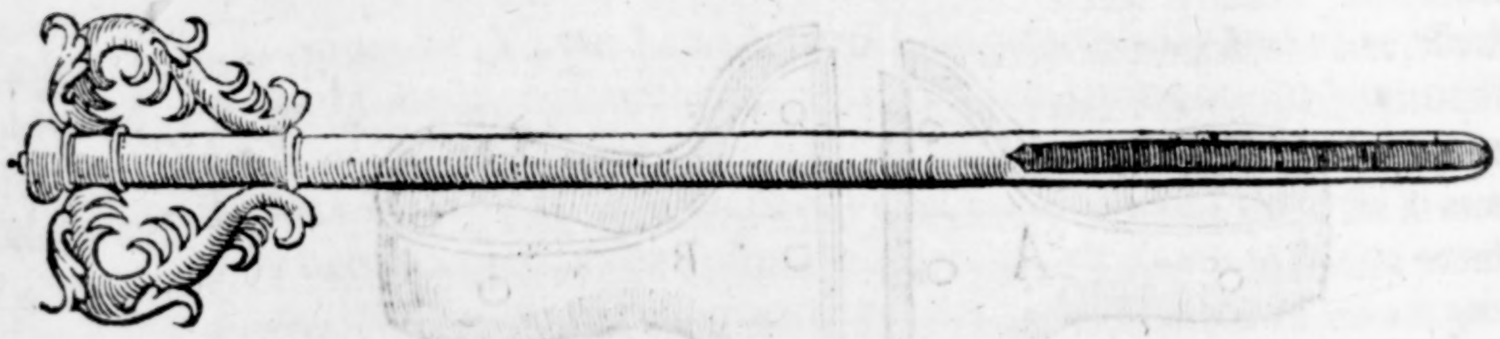
CHAP. XLVII.

How to take ſtones out of womens bladders.

How to ſearch for the ſtone in women.

WEe know by the ſame ſignes that the ſtone is in a womans bladder as we do in a mans, yet it is far more eaſily ſearched by a *Cathater*, for that the necke of the bladder in the ſhorter, broader, and the more ſtreight. Wherfore it may not onely be found by a *Cathater* put into the bladder, but alſo by the fingers thruſt into the necke of the womb, turning them up towards the inner ſide of the *Os pubis*, and placing the ſicke woman in the ſame poſture as we mentioned in the cure of men. Yet you muſt obſerve that maides yonger than ſeven yeares old, that are troubled with the ſtone, cannot bee ſearched by the neck of the wombe, without great violence. Therefore the ſtone muſt be drawne from them by the ſame meanes as from boyes, to wit, by thruſting the fingers into the fundament; for thus the ſtone being found out, and the lower belly alſo preſſed with the other hand, it muſt be brought to the necke of the bladder, and then drawn forth by the forementioned meanes. Yet if the riper yeares of the patient permit it to bee done without violence, the whole worke ſhall be more eaſily and happily performed, by putting the fingers into the necke of the wombe, for that the bladder is nearer the neck of the womb, than it is to the right gut. Wherfore the fingers thus thruſt in, a *Cathæter* ſhall bee preſently put into the necke of the bladder. This *Cathæter* muſt bee hollow, or ſlit on the outſide like thoſe before deſcribed, but not crooked, but ſtreight, as you may perceive by the following figure.

A Cathæter *upon which, being put into the Bladder, the necke thereof may be cut, to draw out a ſtone from a woman.*



Upon this inſtrument the neck of the bladder may be cut, and then with the *Dilater* made for the ſame purpoſe, the inciſion ſhall bee dilated as much as need requires; yet with this caution, that ſeeing the necke of a womans bladder is the ſhorter, it admits not ſo great dilatation as a mans, for otherwiſe there is danger that it may come to the body of the bladder, whence an unvoluntary ſhedding of the water may enſue and continue thereafter. The inciſion being dilated, the Surgeon putting one or two of his fingers into the necke of the wombe, ſhall preſſe the bottome of the bladder, and then thruſt his crooked inſtruments or *forcipes* in by the wound, and with theſe he ſhall eaſily pluck out the ſtone, which he ſhall keepe with his fingers from ſlipping backe againe. Yet *Laurence Collo* the Kings Surgeon, and both his ſunnes (than whom I doe not know whether ever there were better cutters for the ſtone) doe otherwiſe performe this operation; for they doe not thruſt their fingers into the fundament or necke of the wombe, but contenting themſelves with putting in onely the Guiders (whereof we formerly made mention) into the paſſage of the urine, they preſently thereupon make a ſtreight inciſion directly at the mouth of the neck of the bladder, and not on the ſide, as is uſually done in men. Then they gently by the ſame way thruſt the *forcipes* hollowed on the outſide formerly delineated, and ſo dilate the wound by tearing it as much as ſhall be ſufficient for the drawing of the ſtone forth of the bladder. The reſidue of the cure is the ſame with that formerly mentioned in men: yet this is to be added, that if an ulcer grow in the neck of the bladder by reaſon of the rending it, you may by putting in the *ſpeculum matricis*, dilate the neck of the womb, that fitting remedies may be applyed with the more eaſe.

Chap. XLVIII.

Of the ſuppreſsion of the Urine by internall cauſes.

BEſides the forementioned cauſes of ſuppreſſed urine, or difficulty of making of water, there are many other, leſt any may thinke that the urine is ſtopt onely by the ſtone or gravell, as Surgeons thinke, who in this caſe preſently uſe diuretickes. Therefore the urine is ſuppreſt by externall and internall cauſes. The internall cauſes are clotted bloud, tough phlegme, warts, caruncles bred in the paſſages of the urine, ſtones, and gravell; the urine is ſometimes ſuppreſt, becauſe the matter thereof, to wit, the ſerous or whayiſh part of the blood, is either conſumed by the feavouriſh heat, or carryed other wayes by ſweats or a ſcouring; ſomtimes alſo the flatulencie there conteined, or inflammation ariſing in the parts made for the urine and the neighbouring members, ſuppreſſes the urine. For the right gut if it be inflamed, intercepts the paſſage of the urine, either by a tumour whereby it preſſeth upon the bladder, or by the communication of the inflammation. Thus by the default of an ill affected liver, the urine is oft times ſuppreſt in ſuch as have the dropſie; or elſe by dulneſſe or decay of the attractive, or ſeparative faculty of the reines by ſome great diſtemper, or by the default of the animall faculty, as in ſuch as are in a phrenſie, lethargy, convulſion, apoplexie. Beſides alſo a tough and viſcide humour falling from the whole body into the paſſages of the urine, obſtructs and ſhuts up the paſſage. Alſo too long holding the water ſomtimes cauſes this affect. For when the bladder is diſtended above meaſure, the paſſage thereof is drawn together and made more ſtrait: hereto may be added that the too great diſtenſion of the bladder is a hinderance that it cannot uſe the expulſive faculty, and ſtraiten it ſelfe about the urine to the excluſion thereof; hereto alſo paine ſucceeds, which preſently dejects all the faculties of the part which it ſeazeth upon. Thus of late a certaine young man, riding on horſebacke before his Miſtreſſe, and therfore not daring to make water, when he had great need ſo to doe, had his urine ſo ſuppreſt that returning from his journy home into the city, he could by no meanes poſſible make water. In the meane time he had grievous paine in the bottom of his belly and the *perinæum*, with gripings and a ſweat all over his body, ſo that he almoſt ſowned. I being called, when I had procured him to make water by putting in a hollow *Cathater*, and preſſing the bottom of his belly, whereof he forthwith made two pints; I told them that it was not occaſioned by the ſtone, which notwithſtanding the ſtanders by imagined to bee the occaſion of that ſuppreſſion of urine. For thence forward there appeared no ſignes of the ſtone in the youth, neither was he afterwards troubled with the ſtopping of his urine.

In ſuppreſſion of the urine we muſt not preſently fly to diureticks.

Why the too long holding the urine cauſeth the ſuppreſſion therof.

A hiſtory.

Chap. XLIX.

A digreſsion concerning the purging of ſuch things as are unprofitable in the whole body by the urine.

I Think it not amiſſe to teſtifie by the following hiſtories, the providence of nature in expelling by urine ſuch things as are unprofitable in the whole body. *Mounſieur Sarret* the Kings ſecretary was wounded in the right arme with a piſtoll bullet; many and maligne ſymptomes happened thereupon, but principally great inflammations, flowing with much *ſanies* and *pus* or quitture: it ſometimes happened that without any reaſon this purulent and ſanious effluxe of matter was ſtayd in the inflammation; wherof while we ſolicitouſly enquired into the cauſe, wee found both his ſtooles and water commixed with much purulent filth, and this through the whole courſe of the diſeaſe, whereof notwithſtanding by gods aſſiſtance he recovered, and remaines whole and ſound; we obſer-

A hiſtory.

ved

A hiſtory.

How the *pus* may flow from the wounded arme, by the urine and excrements.

Lib. de loc. affect. 6 cap. 4.

ved that as long as his arme flowed with this filthy matter, ſo long were his excrements of the belly and bladder free from the ſanious and purulent matter: as long on the contrary as the ulcers of the arme were dry, ſo long were the excrements of the guts and bladder ſanious and purulent. The ſame accident befell a Gentleman called *Mounſieur da la Croix*, who received a deadly wound with a ſword on the left arme, though *German Chavall*, and *Maſter Raſſe* moſt expert Surgeons, and others, who together with me had him in cure, thought it was not ſo for this reaſon, becauſe the *pus* cannot runne ſo long a way in the body, neither if it were ſo, could that bee done without the infection and corruption of the whole maſſe of blood, whileſt it floweth through the veines; therefore to be more probable that this quantity of filth, mixed with excrements and urine, flowed by reaſon of the default of the liver, or of ſome other bowell, rather than from the wounded arme: I was of a contrary opinion for theſe following reaſons. Firſt for that which was apparently ſeen in the patient; for as long as the excrement and urine were free from this purulent matter, ſo long his arme plentifully flowed therewith; this on the contrary being dry, much purulent matter was voided both by ſtoole and urine. Another was, that as our whole body is perſpirable, ſo it is alſo (if I may ſo terme it) confluxible. The third was an example taken from the glaſſes which the French terme Monte-vins (that is, Mount-wines) for if a glaſſe that is full of wine be ſet under another that is fill'd with water, you may ſee the wine raiſe it ſelſe out of the lower veſſell to the upper through the midſt of the water, & ſo the water deſcend through the midſt of the wine, yet ſo, that they do not mixe themſelves, but the one take & poſſeſs the place of the other. If this may be done by art, by things only naturall, & to be diſcernd by our eyes, what may be done in our bodies, in which by reaſon of the preſence of a more noble ſoule, all the works of nature are far more perfect? What is it which we may deſpair to be done in the like caſe? For doth not the laudible blood flow to the guts, kidneyes, ſpleen, bladder of the gall, by the impulſe of nature together with the excrements, which preſently the parts themſelves ſeparate from their nutriment? Doth not milke from the breaſts flow ſometimes forth of the wombes of women lately delivered? Yet that cannot bee carryed downe thither, unleſſe by the paſſages of the mamillary veines and arteryes, which meete with the mouthes of the veſſels of the wombe in the middle of the ſtreit muſcles of the *Epigaſtrium*. Therefore no marvaile if according to *Galen* the *pus* unmixt with the bloud flowing from the whole body by the veines and arteryes into the kidneyes and bladder, bee caſt forth together with the urine. Theſe and the like things are done by nature, not taught by any counſell or reaſon, but onely aſſiſted by the ſtrength of the ſegregating and expulſive faculty; and certainely we preſently diſſecting the dead body, obſerved that it all, as alſo all the bowels thereof, were free from inflammation and ulceration, neither was there any ſigne or impreſſion of any purulent matter in any part thereof.

CHAP. L.

By what externall cauſes the urine is ſuppreſt; and prognoſtickes concerning the ſuppreſſion thereof.

Why the diſlocation of a *vertebra* of the loins may cauſe a ſuppreſſion of urine.

Why the ſuppreſſion of the urine becomes deadly.

THere are alſo many externall cauſes, through whoſe occaſion the urine may be ſuppreſt. Such are bathing and ſwimming in cold water; the too long continued application of Narcoticke medicines upon the Reines, *perinæum* and ſhare; the uſe of cold meats and drinkes, and ſuch other like. Moreover, the diſlocation of ſome *Vertebra* of the loines to the inſide, for that it preſſeth the nerves diſſeminated thence into the bladder; therefore it cauſeth a ſtupidity or numneſſe of the bladder. Whence it is, that it cannot perceive it ſelſe to bee vellicated by the acrimony of the urine, and conſequently it is not ſtirred up to the expulſion thereof. But from whatſoever cauſe the ſuppreſſion of the urine proceeds, if it perſevere for ſome dayes, death is to bee feared, unleſſe either a feaver, which may conſume the matter of the urine, or a ſcouring or fluxe, which may divert it, ſhall happen thereupon. For thus by ſtay it acquireth an acride and venenate

nate quality, which flowing by the veines readily infecteth the maſſe of blood, and carryed to the braine much moleſts it by reaſon of that ſimilitude and ſympathy of condition which the bladder hath with the *Meninges*. But nature, if prevalent, eaſily freeth it ſelfe from this danger by a manifeſt evacuation by ſtoole, otherwiſe it muſt neceſſarily call as it were to its aide, a feavouriſh heat, which may ſend the abounding matter of this ſerous humidity out through the ſkinne, either by a ſenſible evacuation as by ſweat; becauſe ſweate and urine have one common matter: or elſe diſperſe and breath it out by tranſpiration, which is an inſenſible excretion.

A feaver following thereon helps the ſuppreſſion of urine.

CHAP. LI.

Of bloody Urine.

The differences

Cauſes.

SOME piſſe pure blood, others mixt, and that either with urine, & then that which is expelled reſembles the waſhing of fleſh newly killed; or elſe with *pus*, or matter, and that either alone or mixed with the urine. There may be divers cauſes of this ſymptome, as the too great quantity of blood gathered in the body, which by the ſuppreſſion of the accuſtomed & periodicall evacuation, by the courſes or hæmorrhoids, now turns its courſe to the reins & bladder; the fretting aſunder of ſome veſſell by an acride humour, or the breaking thereof by carrying or lifting of ſome heavie burden, by leaping, falling from high, a great blow, the falling of ſome wait upon the loins, riding poſt too violently, the too immoderate uſe of venery, & laſtly, from any kind of painful & more violent exerciſe, by a rough & ſharp ſtone in the kidneys, by the weakneſſe of the retentive faculty of the kidneys, by a wound of ſome of the parts belonging to the urine, by the too frequent uſe of diureticke and hot meats and medicines, or elſe of things in their whole nature contrary to the urenary parts; for by theſe and the like cauſes, the reins are oft times ſo enflamed, that they neceſſarily impoſtumate, and at length the impoſtume being broken it turnes into an ulcer, caſting forth quitture by the urine. In ſo great variety of the cauſes of bloody urine, we may gather whence the cauſes of this ſymptome may ariſe, by the depraved action of this, or that part, by the condition of the flowing blood, to wit, pure or mixt, and that either with the urine alone, or with *pus*. For example, if this bloody matter flow from the lungs, liver, kidneies, diſlocated *Vertebræ*, the ſtreight gut, or other the like part: you may diſcerne it by the ſeat of the paine and ſymptomes, as a feaver; and the propriety of the paine, and other things which have preceded, or are yet preſent. And we may gather the ſame by the plenty and quality, for if, for example, the *pus* flow from an ulcer of the arm, the purulent matter will flow by turnes, one while by the urine, ſo that little is caſt forth by the ulcer; then preſently on the contrary the urine becomes more cleere. That purulent matter which flows from the lungs by reaſon of an *Empyema*, or from the liver, or any other bowell placed above the midriffe, the *pus* which is caſt forth with the urine, is both in greater plenty and more exactly mixed with the urine, than that which flowes from the kidneyes and bladder. It neither belongs to our purpoſe, or a Surgeons office, either to undertake, or deliver the cure of this affect. It ſhall ſuffice onely to note that the cure of this ſymptome is not to bee hoped for ſo long as the cauſe remaines. And if this blood flow by the opening of a veſſell, it ſhall bee ſtayed by aſtringent medicines; if broken, by agglutinative; if corroded or fretted aſunder, by ſarcoticke.

Signes of what cauſes they proceed.

Cure.

Chap. LII.

Of the ſignes of ulcerated Kidneyes.

I Had not determined to follow or particularly handle the cauſes of bloody urines, yet becauſe that which is occaſioned by the ulcerated reines or bladder more frequently happens, therefore I have thought good briefly to ſpeake thereof in this place. The ſignes of an ulcer of the reines are, pain in the loines, matter howſoever mixt with the urine, never evacuated by it ſelfe, but alwaies flowing forth with the urine, and reſiding in the botome of the chamberpot, with a ſanious and redde ſediment, fleſhy and as it were bloody fibres ſwimming up and downe in the urine, the ſmell of the filth is not ſo great as that which flowes from the ulcerated bladder, for that the kidneyes, ſeeing they are of a fleſhy ſubſtance, doe farre better ripen and digeſt the purulent matter than the bladder which is nervous and bloodleſſe.

Why the matter which flows from the kidneyes is leſſe ſtinking than that which flowes from the bladder.

Chap. LIII.

Of the ſignes of the ulcerated Bladder.

Differences.

Ulcers are in the bottome of the bladder and the necke thereof. The ſignes of an ulcer in the bladder are, a deepe paine at the ſharebones; the great ſtinch of the matter flowing therefrom; white and thin skins ſwimming up and downe in the water. But when the ulcer poſſeſſeth the necke of the bladder, the paine is more gentle, neither doth it trouble before the patient come to make water, but in the very making thereof, and a little while after.

But it is common both to the one and the other, that the yard is extended in making of water, to wit, by reaſon of the paine cauſed by the urine fretting of the ulcerated part in the paſſage by: neither is the matter ſeen mixed with the urine, as is uſuall in an ulcer of the upper parts, becauſe it is powred forth not together with the urine, but after it.

Chap. LIV.

Prognoſticks of the ulcerated Reines and Bladder.

Why ulcers of the bladder are cured with more difficulty.

Ulcers of the kidneies are more eaſily and readily healed than thoſe of the bladder; for fleſhy parts more ſpeedily heale and knit, than bloodleſſe and nervous parts. Ulcers which are in the bottom of the bladder, are uncurable, or certainely moſt difficult to heale, for beſides that they are in a bloodleſſe part, they are daily vellicated and exaſperated by the continuall affluxe of the contained urine; for all the urine is never evacuated: now that which remaines after making water, becomes more acride by the diſtemper and heat of the part, for that the bladder is alwaies gathered about it, & dilated & ſtraitned according to the quantity of the conteined urine: therfore in the *Iſchuria*, that is, the ſuppreſſion or difficulty of making water, you may ſomtimes ſee a quart of water made at once. Thoſe which have their legs fall away, having an ulcer in their bladder, are near their deaths. Ulcers ariſing in theſe parts, unleſſe they be conſolidated in a ſhort time, remaine uncureable.

CHAP. LV.

What cure muſt be uſed in the ſuppreſſion of the Urine.

IN curing the ſuppreſſion of the urine, the indication muſt be taken from the nature of the diſeaſe, and cauſe thereof, if it bee yet preſent or not. But the diverſity of the parts, by which being hurt, the *Iſchuria* happens, intimates the variety of medicines, neither muſt we preſently run to diuretickes, and things breaking the ſtone, which many Empericks doe. For hence grievous and maligne ſymptomes often ariſe, eſpecially if this ſuppreſſion proceed from an acride humour, or blood preſſed out by a bruiſe, immoderate venery, and all more vehement exerciſe, a hot and acride potion, as of *Cantharides*, by too long abſtaining from making water, by a *Phlegmon*, or ulcer of the urenary parts. For thus the paine and inflammation are encreaſed, whence followes a gangrene, & at length death. Wherfore attempt nothing in this caſe without the advice of a Phyſitian, no not when you muſt come to Surgery. For diureticks can ſcarce have place in another caſe, than when the urenary paſſages are obſtructed by gravell, or a groſſe and viſcide humour, or elſe in ſome cold countrey, or in the application of Narcoticks to the loines, although we muſt not here uſe theſe before we have firſt made uſe of generall medicines: now Diuretickes may be adminiſtred ſundry waies, as hereafter ſhall appeare.

Scopes of curing.

To what ſuppreſſion of the urine diureticks muſt not be uſed.

To which and when to be uſed.

℞. *agrimon. urtic. parietar. ſurculos rubros habentis, an.* m. i. *rad. aſparag. mundat.* ℥iiii. *gran. alkekengi, nu.* xx. *ſem. malvæ* ʒß. *rad. acor.* ʒi. *bulliant omnia ſimul in ſex libris aquæ dulcis ad tertias, deinde coletur.* Let the patient take ℥ iiii. hereof with ℥i. of ſugar candy, and drinke it warme faſting in a morning, three houres before meat. Thirty or forty Ivie berries beaten in white wine, and given the patient to drink ſome two houres before meate, are good for the ſame purpoſe. Alſo ʒ i. of nettle ſeeds made into fine pouder and drunke in chicken broth, is good for the ſame purpoſe. A decoction alſo of Grummell, Goats ſaxifrage, pellitory of the wall, white ſaxifrage, the rootes of parſley, *aſparagus, acorus, bruſcus*, and orris drunke in the quantity of ſome three or foure ounces, is profitable alſo for the ſame purpoſe. Yet this following water is commended above the reſt to provoke urine, & open the paſſages thereof, from what cauſe ſoever the ſtoppage therof proceed. ℞. *radic. oſmund. regal. cyp. biſmal. gram. petroſel. fœnic. an.* ʒii. *raph. craſſior. in taleol* ℥iiii. *macerentur per noctem in aceto albo acerrimo, bulliant poſtea in aquæ fluvialis* ℔. x. *ſaxifrag. criſt. marin. rub. tinct. milii ſolis, ſummitat. malvæ, biſmal. an.* p. ii. *berul. cicer. rub. an.* p. i. *ſem. melon. citrul. an.* ʒ ii. ß. *alkekengi, gra.* xx. *glycyrhiz.* ℥ i. *bulliant omnia ſimul ad tertias: in colatura infunde per noctem fol. ſen. oriental.* ℔. ß. *fiat iterum parva ebullitio, in expreſſione colata infunde cinam. elect.* ʒ vi. *colentur; iterum colatura injiciatur in alembicum vitreum, poſtea tereb. venet. lucid.* ℔ ii. *aq. vitæ* ℥ vi. *agitentur omnia ſimul diligentiſſime. Lutetur alembicum luto ſapientiæ, fiat deſtillatio lento igne in balneo mariæ.* Uſe it after the following manner. ℞. *aq. ſtillatitiæ preſcriptæ* ℥ii. *aut* iii. According to the operation which it ſhall performe, let the patient take it foure houres before meat. Alſo raddiſh water deſtilled in *balneo mariæ* is given in the quantity of ℥iiii. with ſugar, and that with good ſucceſſe. Bathes and *ſemicupia*, or halfe bathes artificially made, relaxe, ſoften, dilate, and open all the body; therefore the preſcribed diuretickes mixed with halfe a dram of Treacle may be fitly given at the going forth of the bath. Theſe medicines following are judged fit to cleanſe the ulcers of the kidneyes and bladder. Syrupe of maiden-haire, of roſes, taken in the quantity of ℥i. with *hydromel*, or barly water: Aſſes or Goats milke are alſo much commended in this affect, becauſe they cleanſe the ulcers by their ſerous or whayiſh portion, and agglutinate by their cheeſelike. They muſt bee taken warme from the dugge, with honey of roſes or a little ſalt, leſt they corrupt in the ſtomacke; and that to the quantity of foure ounces, drinking or eating nothing preſently upon it. The following Trochiſces are alſo good for the ſame purpoſe. ℞. *quatuor ſem. frigid. major. ſeminis papaveris albi, portulac. plantag. cydon, myrtil, gum. tragacanth. et arub. pinear.*

A diureticke water.

Why the uſe of diuretickes is better after bathing.

To cleanſe the ulcers of the kidneyes and bladder.

Trochiſces to heale the ulcers of the kidneies.

glycyrrhi. mund. hordei mund. mucag. pſilii, amygdal. dulcium, an. ℥ i. *boli armen. ſanguin. dracon. ſpodii, roſar. maſtich. terræ, ſigil. myrrhæ, an.* ℥ ii. *cum oxymelite, conficiantur ſecundum artem trochiſci.* Let the patient take ʒ ß. diſſolved in whay, ptiſan, barly water, and the like; they may alſo be profitably diſſolved in plantaine water, and injected into the bladder. Let the patient abſtaine from wine, and inſtead thereof let him uſe barly water, or *hydromel*, or a ptiſan made of an ounce of raiſins of the ſun, ſtoned and boyled in five pints of faire water, in an earthen pipkin well leaded, or in a glaſſe, untill one pinte be conſumed, adding thereto of liquorice ſcraped and beaten ʒ i. of the cold ſeeds likewiſe beaten two drams. Let it, after it hath boyled a little more, be ſtrayned through an hypocras bagge, with a quarterne of ſugar, and two drams of choice cinamon added thereto, and ſo let it be kept for uſuall drinke.

Drinke in ſtead of wine.

CHAP. LVI.

Of the Diabete, *or inabilty to hold the Urine.*

What *Diabete* is.

The cauſes.

THE *Diabete* is a diſeaſe, wherein preſently after one hath drunke, the urine is preſently made in great plenty, by the diſſolution of the retentive faculty of the reines, and the depravation of immoderation of the attractive faculty. The externall cauſes are the unſeaſonable and immoderate uſe of hot and diureticke things, and all more violent and vehement exerciſes. The internall cauſes are the inflammation of the liver, lungs, ſpleen, but eſpecially of the kidneyes and bladder. This affect muſt be diligently diſtinguiſhed from the excretion of morbifick cauſes by urine. The loines in this diſeaſe are moleſted with a pricking and biting pain, and there is a continuall & unquenchable thirſt: and although this diſeaſe proceed from a hot diſtemper, yet the urine is not coloured, red, troubled, or thick, but thin, and white or wateriſh, by reaſon the matter thereof makes very ſmall ſtay in the ſtomacke, liver, and hollow veine, being preſently drawn away by the heat of the kidneyes or bladder. If the affect long endure, the patient for want of nouriſhment falleth away, whence certaine death enſues.

Signes.

Why the urines are watriſh.

The cure.

Narcoticke things to be applyed to the loines.

For the cure of ſo great a diſeaſe, the matter muſt be purged, which cauſes or feedes the inflammation or *phlegmon*, and conſequently blood muſt be let. We muſt abſtain from the foure cold ſeedes, for although they may profit by their firſt quality, yet will they hurt by their diuretick faculty. Refrigerating and aſtringent nouriſhments muſt bee uſed, and ſuch as generate groſſe humours, as Rice, thicke and aſtringent wine mixed with much water. Exceeding cold, yea Narcotick things ſhall be applyed to the loins, for otherwiſe by reaſon of the thickneſs of the muſcles of thoſe parts, the force, unleſs of exceeding refrigerating things, will not be able to arrive at the reins; of this kind are oile of white poppy, henbain, *opium*, purſlain, and lettuce ſeed, mandrage vinegar, and the like: of which, cataplaſmes, plaiſters, and ointments, may be made, fit to corroberate the parts, and correct the heat.

CHAP. LVII.

Of the Strangury.

What the Strangury is.

The cauſes.

THE Strangury is an affect having ſome affinity with the *Diabete*, as that wherin the water is unvoluntarily made, but not together at once, but by drops, continually and with paine. The externall cauſes of a ſtrangury are, the too abundant drinking of cold water, & all too long ſtay in a cold place. The internall cauſes are, the defluxion of cold humours into the urenary parts, for hence they are reſolved by a certain palſie, and the *ſphincter* of the bladder is relaxed, ſo that he cannot hold his water according to his deſire: inflammation alſo & all diſtemper cauſeth this affect, and whatſoever in ſome ſort obſtructs the paſſage of the urine, as clotted blood, thick phlegme, gravell, and the like. And becauſe, according to *Galens* opinion, all ſorts of diſtemper may cauſe this diſeaſe, divers medicines

dicines ſhall be appointed according to the difference of the diſtemper. Therfore againſt a cold diſtemper fomentations ſhall be provided of a decoction of mallows, roſes, *origanum*, calamint, and the like, & ſo applied to the privities: then preſently after let them be anointed with oile of bayes, and of *Caſtoreum*, and the like. Strong and pure wine ſhall be preſcribed for his drinke, and that not onely in this cauſe, but alſo when the Strangury happens by the occaſion of obſtruction, cauſed by a groſſe and cold humor, if ſo be that the body be not plethoricke. But if inflammation together with a *Plethora* or fulneſſe hath cauſed this affect, wee may, according to *Galens* advice, heale it by blood-letting. But if obſtruction bee in fault, that ſhall be taken away by diuretickes either hot or cold, according to the condition of the matter obſtructing. We here omit to ſpeake of the *Dyſuria*, or difficulty of making water, becauſe the remedies are in generall the ſame with thoſe which are uſed in the *Iſchuria*, or ſuppreſſion of urine.

Com. ad aphor. 25. ſect. 3.

Ad aphor. 48. ſect. 7.

CHAP. LVIII.

Of the Cholike.

WHenſoever the Guts being obſtructed, or otherwiſe affected, the excrements are hindred from paſſing forth, & if the fault bee in the ſmall guts, the affect is termed *Volvulus*, *Ileos*, & *miſerere mei*, but if it be in the greater guts, it is called the Cholick, from the part affected, which is the *Colon*, that is, the continuity of the greater guts; but eſpecially that portion of the greater guts, which is properly and eſpecially named *Colon*, or the cholicke Gut. Therefore *Avicen* rightly defines the Cholicke, A paine of the Guts wherein the excrements are difficultly evacuated by the fundament. *Paulus Aegineta* reduceth all the cauſes of the Colicke how various ſoever to foure heads, to wit, to the groſſeneſſe, or toughneſſe of the humours impact in the coates of the guts: flatulencies hindred from paſſage forth: the inflammation of the guts: and laſtly, the collection of acride and biting humors. Now we will treat of each of theſe in particular. Almoſt the ſame cauſes produce the groſſeneſſe of humors, and flatulencies in the guts, to wit, the uſe of flatulent, and phlegmaticke, tough, and viſcide meats, yea alſo of ſuch as are of good nouriſhment, if ſundry thereof, and of ſundry kinds be eaten at the ſame meale, and in greater quantity than is fit. For hence crudity and obſtruction, and at length the collection of flatulencies, whereon a tenſive paine enſues. This kind of Cholick is alſo cauſed by the uſe of crude fruits, and too cold drink, drunken eſpecially when as any is too hot by exerciſe, or any other way: for thus the ſtomacke and the guts continued thereto, are refrigerated, and the humours and excrements therein conteined are congealed, and, as it were, bound up. The Cholicke which is cauſed by the inflammation of the kidneyes, happens by the Sympathy of the reines pained or troubled with the ſtone or gravell conteined in them or the ureters. Therefore then alſo paine troubles the patient at his hips and loynes, becauſe the nerves, which ariſing from the *vertebræ* of the loins, are oppreſſed by the weight of the ſtones and gravell, about the joint of the hippe are diſſeminated into the muſcles of the loines and thigh. Alſo the ureters are pained (for they ſeeme nothing elſe but certaine hollow nerves) and alſo the cremaſter muſcles, ſo that the patients teſticles may ſeeme to be drawne upwards with much violence. Hence great, phlegmaticke, and cholericke vomiting, and ſweat of the whole body, all which doe not ſurceaſe before that the ſtone, or gravell ſhall bee forced downe into the bladder. Now vomiting happens in this affect, for that the ventricle by reaſon of its continuity and neighbourhood which it hath with the guts, ſuffers by conſent or ſympathy. For the ſtomacke is of the ſame kind or matter as the guts are, ſo that the guts ſeeme nothing elſe but a certaine production of the ſtomacke. Therefore if at any time nature endeavour to expell any thing that is troubleſome in the kidneyes, ureters, coats of the guts, meſentery, *pancreas*, and hypochondryes, it cauſeth a Colicke with pain and vomiting. A hot and dry diſtemper alſo cauſeth the Colicke, producing a pricking

What *Ileos*, or *iliaca paſſio* is.

What *Cholica paſſio* or the Cholicke is.

Lib. 3.

Lib. 3. c. 43.

The manner of the Stone chollicke.

How a hot diſtemper cauſeth the Cholicke.

The folding of the guts the cauſe of the collick.

ing and biting paine by drying the excrements ſhut up in the guts, as alſo by waſting as it were the radical humours of that place provided for the lubricating of the guts. Acride, viſcide, and tough phlegme cauſeth the ſame. There is alſo another cauſe of the Collicke which is not ſo common, to wit, the twining of the guts, that is, when they are ſo twined, folded, and doubled, that the excrements, as it were, bound in their knots, cannot be expelled, as it manifeſtly happens in the rupture called *Enterocele*, by the falling of the guts into the cod. Likewiſe alſo wormes generated in the Collicke Gut, whileſt that they mutually fold or twine themſelves up, doe alſo twine the *Colon* it ſelfe and fold it with them. Alſo the too long ſtay of the excrements in the guts, whether it ſhall happen by the peculiar default of the too hot and dry body of the patient, or by his diet, that is, the uſe of too dry meats, or exerciſes and paines taken in the heate of the ſunne, or by the greatneſſe of buſineſſe, the minde being carryed away, cauſeth the Collicke, with headache, and plenty of vapours flying upwards.

A hiſtory.

Signs whereby we know that the collick proceeds from this or that cauſe.

Avicen li. 3. Hip. aphor. 10. ſect. 4.

I remember I once diſſected the body of a boy of ſome twelve yeares old, who had his guts folded with many as it were tyes or knots, of the reſtrained, too hard & dry excrements, the which he caſt out by his mouth a little before his death, which brought him to his end, being not helped in time by fitting medicines. Now theſe are the cauſes of the Collick, according to the opinion of the ancient and moderne Phyſicians, of whoſe ſignes I judge it not amiſſe here to treat in particular. You ſhall know the patient is troubled with the ſtone collick by the paine, which is fixed and as it were kept in one place, to wit, of the kidnies; by his former manner of life, as, if the patient hath formerly voyded ſtones or gravell together with his urine; by the paine of the hips and teſticles for the formerly mentioned cauſes, & laſtly, by that the patient caſts forth by ſtoole or urine, for that the great & laborious endeavour of nature to caſt forth the ſtone which is in the kidnies, is propagated by a certaine ſympathy, & like ſtudy of the neighbouring parts ſtirring up the expulſive faculties each to his work. The ſignes of a flatulent collick are, a tenſive pain, ſuch as if the guts were rent or torne in pieces, together with a noiſe or rumbling in the belly. The force of the ſhut up wind is ſometimes ſo great, that it rendeth or teareth the guts in ſunder, no otherwiſe than a ſwines bladder too hard blown up. Which when it happens, the patient dyes with much vomiting, becauſe the ſtomack oppreſt with wind, can conteine nor imbrace no meat. The collick which is occaſioned by the too long keeping in of the excrements, is accompanied with the weight and pain of the belly, the tenſion of the guts, headach, apparent hardneſs of the belly, & the complaint of the patient that he hath not gone to ſtoole in a long time. That which proceeds from a cholerick inflammation, yeelds a ſenſe of great heat & pulſation in the midſt of the belly, by reaſon of the veins and arteries which are in the *pancreas* and coats of the guts, and there are the other ſignes of a *Phlegmon*, although alſo this as it were inflammation may ariſe alſo from ſalt, acride & viſcous phlegme, which nature can neither expel upwards by vomit, nor downewards by ſtool, this ſundry times is aſſociated with a difficulty of making water, for that when as the right gut is inflamed the bladder is preſſed by reaſon of their ſociety or neighbourhood. The collick which proceeds from the contorſion of the guts ſhews it ſelfe by the exceſſive cruelty of the paine, ariſing for that the guts are not in their due ſite and place, and becauſe the excrements by their too long detenſion acquire a preternaturall heat; & this is the cauſe of the death of many ſuch as have Ruptures, for that the gut falling down from the naturall place into the Cod, being a preternatural place, is redoubled & kept there as it were bound, whereby the excrements being baked becomming more acridly hot cauſe inflammation, and by raiſing up flatulencies encreaſe the diſtenſion through all the guts, untill at length a deadly *Ileos* or collick ariſing, they come forth at the mouth. For prognoſticks; it is better to have the paine in the collick to wander up and down, than to be fixed; it is good alſo that the excrements are not wholly ſuppreſt. But the evill ſignes that here appeare pronounce the affect either difficult or deadly. Now theſe ſhew that it is deadly, intolerable tormenting paine, continuall vomiting, cold ſweat, coldneſſe of the extreme parts, hickiting by reaſon of the ſympathy the ſtomack hath with the guts, a Phrenſie by the conſent of the braine with the ſtomacke, and oft-times a

con-

, as alſo by waſting
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convulſion by drawing the matter into the nerves. But ſuch as have griping and pain about their navil and loines, which can neither be helped by medicine nor otherwiſe, it ends in a Dropſie. The cure muſt be diverſified according to the variety of the cauſes, for the ſtone collick is cured by medicines proper to the ſtone; that which is cauſed by an *Enterocele*, is cured by the onely reſtoring the gut to its place; that which is occaſioned by wormes, requires medicines fit to kill and caſt forth the wormes. But that which proceeds from the weakneſſe and refrigeration of the guts and ſtomack, is cured by heating and ſtrengthening medicines aſwell applyed outwardly as taken in inwardly by the mouth, or otherwaies. The beginning of the cure of that which is occaſioned by tough flegme and flatulencies, is by the mitigation of the paine, ſeeing there is nothing which more dejects the powers than paine. To this purpoſe ſhall you provide bathes, *Semicupia*, fomentations of mallowes, marſh-mallowes, violet leaves, penyroyall, fennell, *Origanum*, the ſeeds of time and fænugreek, flowers of camomill, melilote, and other ſuch like, which have power to heat, dry, attenuate, and rarifie the skin, ſo to diſſipate the wind. But all ſuch muſt be actually hot. Alſo the belly may be anointed with this following ointment. ℞. *olei chamæm. aneth. butyr. recent. an.* ℥i. *ſem. apii, petroſ. & galang. an.* ʒß. *aq. vitæ, ol. ſalviæ aut thymi chimice extract. q. ſ.* The following liniment is much commended by *Hollerius.* ℞. *olei rut. & nardi, an.* ʒvi. *galbani cum aq. vit. diſſoluti* ʒii. *liquefactis ſimul adde Zibetæ gr.* iv. *croci, gr.* vi. *fiat linimentum.* Alſo little bags made with millet, oates and ſalt fryed with a little white wine in a frying pan, ſhall be applyed hot upon the belly & flankes, and renewed before they grow cold. You may, in ſtead of theſe bags, uſe oxe bladders halfe filled with a decoction of reſolving things; as ſalt, roſemary, thime, lavander, bay-berries and the like: then inject a glyſter being thus made. ℞. *quatuor remol. an.* m. i. *orig. puleg. calamenth. an.* m. ß. *aniſi, carui an.* m. ß *flor. aneth. an.* p. i. *bulliant in hydromele ad lib.* i. *in qua diſſolve bened. laxat. mellis anthoſati, ſacc. rub. an.* ℥i. *olei aneth. & chamæm. an.* ℥iß. Let a glyſter be made to bee injected at twice; for the guts being ſtretched out cannot conteine the accuſtomed doſis of a glyſter: alſo this following glyſter is much approved. ℞. *vini malvat. & olei nucum, an.* ℥iii. *aqua vitæ,* ℥i. *olei juniperi, & rut. per quintam eſſent. extract. an.* ʒiii. Let this be injected as hot as the patient can endure. I have oft-times as by miracle helped intolerable paine cauſed by the wind collick and phlegme with this glyſter. *Avicen* preſcribes a carminative glyſter made of hyſope, *origanum, acorus,* aniſeeds and Engliſh galengall. Let the patient feed upon meats of good juice & eaſie digeſtion, as broths made with the yolks of egs, ſaffron, hot herbes and a nutmeg; let him drink good wine, as Muskedine, or Hypocras made with good wine ſo to heat the ſtomack & guts. For in *Galens* opinion, all windineſſe is generated by a remiſſe heat. But if the pain ſhall continue, a large Cupping-glaſſe ſhall bee applyed to the navill to draw and diſſipate the windineſſe; the belly ſhall be bound with ſtrong and broad ligatures, to ſtrengthen the guts, and diſcuſſe the matter of flatulencies. The patients taught by nature, uſe this remedy, whilſt none admoniſhing them, they preſſe the belly with their hands in the bitterneſſe of paine. But if the paine cannot be thus appeaſed, we muſt come to ſuch medicines as worke by an occult propertie, as the dryed gut of a Wolfe, for a dram thereof made into pouder is given in wine with good ſucceſſe. That collick which is cauſed by a cholerick inflammation requires contrary medicines, to wit, bloodletting and a refrigerating diet; potions made of *Diacatholicon* and *Caſsia* diſſolved in barley water, alſo cooling glyſters. *Avicen* preſcribes narcoticks, for that being cold, they are contrary to the morbifick cauſe which is hot and dry; ſuch are pils of *Philonium.* Alſo pils of *Hyera picra* in the quantity of ℈iv. with *opium* and ſaffron, of each one graine, may be uſed. Alſo baths are appointed, made of water wherein mallowes, marſh-mallowes, violet leaves, flowers of white lillies, lettuce, purſlaine, have bin boyled, to correct the acrimonie of the cholericke and hot humours, whence the diſeaſe and ſymptome ariſeth. That collick which is like to this, and proceeds from ſalt, acride, thick and tough phlegme, is cured, the humour being firſt attenuated and diffuſed, and at length evacuated by medicines taken by the mouth and otherwiſe according to the preſcription of the learned Phiſitian. But *Avicen* cures that which is occaſioned by the ſuppreſſion of the hardened excrements, and twining of them by meates which

The cure.

Baths and anodine fomentations.

An oyntment.

Why glyſters in the collick muſt be given in leſſe quantity.

Specifick medicines.

The cure of a cholerick collick.

which have an emollient faculty, ſuch as humecting broths, as that which is made of an old cock tired with running, & threſhed to death, & ſo boyled with dill, polypody and a little ſalt, untill the fleſh fall from the bones; alſo he uſeth detergent glyſters ſuch as this which followes. ℞. *betæ*, m. i. *furfuris*, p. i. *ficus*, nu. x. *alth.* m. i. *fiat decoctio ad* ℔. i. *in qua diſſolve nitri & muriæ an.* ʒii. *ſacch. rub.* ℥i. *ol. ſeſamini*, ʒii. But if the obſtruction be more contumacious, you muſt uſe more powerfull ones made *ex cyclamin. centaurio, & hiera diacolocinth. ad* ʒii. But if the obſtruction do notwithſtanding remaine, ſo that the excrements come forth at the mouth, *Marianus Sanctus* wiſheth (by the counſell of many who have ſo freed themſelves from this deadly ſymptome) to drink three pounds of quickſilver with water onely. For the doubled and as it were twined up gut is unfolded by the weight of the quickſilver, and the excrements are depreſt and thruſt forth, and the wormes are killed which gave occaſion to this affect. *John* of S. *Germaines* that moſt worthy Apothecary hath told me that hee ſaw a Gentleman who when as hee could not bee freed from the paine of the collick by any means preſcribed by learned Phyſitians, at length by the counſell of a certaine Germane his friend, drank three ounces of oile of ſweet almonds drawne without fire, and mixed with ſome white wine and pellitory water, and ſwallowed a leaden bullet beſmeared with quickſilver, and that bullet comming preſently out by his fundament, he was wholly freed from his collick.

The force of quickſilver in the unfolding of the guts.

A hiſtory.

Chap. LIX.

Of Phlebotomie, or Blood-letting.

What Phlebotomie is.

Phlebotomie is the opening of a veine, evacuating the blood with the reſt of the humours; thus Arteriotomie, is the opening of an Artery. The firſt ſcope of Phlebotomie is the evacuation of the bloud offending in quantity, although oft-times, the Phyſicians intention is to draw forth the blood which offends in quality, or either way by opening a veine. Repletion which is cauſed by the quantity is two-fold, the one *ad vires*, that is, to the ſtrength, the veines being otherwiſe not very much ſwelled; this makes men infirme and weake, nature not able to beare this humour, of what kinde ſoever it be. The other is termed *ad vaſa*, that is, to the veſſels, the which is ſo called comparatively to the plenty of bloud, although the ſtrength may very well away therewith. The veſſels are oft-times broke by this kind of repletion, ſo that the patient caſts and ſpits up blood, or elſe evacuats it by the noſe, wombe, hæmorrhoids, or *varices*. The repletion which is *ad vires* is knowne by the heavineſſe and wearisomneſſe of the whole body; but that which is *ad vaſa* is perceived by their diſtenſion and fulneſſe, both of them ſtand in neede of evacuation. But bloud is onely to bee let by opening a veine, for five reſpects: the firſt is to leſſen the abundance of bloud, as in Phlethorick bodies, and thoſe who are troubled with inflammation without any plenitude. The ſecond is for divertion, or revulſion, as when a veine of the right arme is opened to ſtay the bleeding of the left noſthrile. The third is to allure or draw downe, as when the *ſaphena* is opened in the ankle to draw downe the courſes in women. The fourth is for alteration or introduction of another quality, as when in ſharpe feavers we open a veine to breathe out that bloud which is heated in the veſſels, and cooling the reſidue which remaines behind. The fift is to prevent imminent diſeaſes, as when in the Spring and Autumne we draw bloud by opening a veine in ſuch as are ſubject to ſpitting of bloud, the ſquinancie, pleuriſie, falling ſickneſſe, apoplexie, madneſſe, gout, or in ſuch as are wounded, for to prevent the inflammation which is to be feared. Before bloud-letting, if there bee any old excrements in the guts, they ſhall bee evacuated by a gentle glyſter, or ſuppoſitory, leſt the meſaraicke veines ſhould thence draw unto them any impuritie. Blood muſt not be drawne from ancient people unleſſe ſome preſent neceſſity require it, leſt the native heat which is but languid in them ſhould be brought to extreme debility, and their ſubſtance decay; neither muſt any in like ſort be taken from children, for feare

The uſe.

Repletion twofold.

The ſignes.

Five ſcopes in letting blood.

From whom we muſt not draw blood.

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of reſolving their powers by reaſon of the tenderneſſe of their ſubſtance, & rareneſs of their habit. The quantity of bloud which is to be let, muſt bee conſidered by the ſtrength of the patient, and greatneſſe of the diſeaſe: therefore if the patient bee weake, and the diſeaſe require large evacuation, it will bee convenient to part the letting of bloud, yea by the interpoſition of ſome dayes. The veine of the forehead being opened is good for the paine of the hind part of the head; yet firſt we foment the part with warme water, that ſo the skin may be the ſofter, and the bloud drawne into the veines in greater plenty. In the ſquinancie the veines which are under the tongue muſt be opened aſlant, without putting any ligatures about the neck for feare of ſtrangling. Phlebotomie is neceſſary in all diſeaſes which ſtop or hinder the breathing, or take away the voice or ſpeech, as likewiſe in all contuſions by a heavie ſtroake, or fall from high, in an apoplexie, ſquinancie, and burning feaver, though the ſtrength be not great, nor the bloud faulty in quantity or quality, bloud muſt not be let in the height of a fever. Moſt judge it fit to draw bloud from the veines moſt remote from the affected and inflamed part, for that thus the courſe of the humours may be diverted, the next veines on the contrary being opened the humours may be the more drawne into the affected part, and ſo increaſe the burden and paine. But this opinion of theirs is very erroneous, for an opened veine alwaies evacuates and diſburdens the next part. For I have ſundry times opened the veines and arteries of the affected part, as of the hands & feet in the Gout of theſe parts; of the temples in the Megrim; whereupon the paine alwayes was ſomewhat aſſwaged, for that together with the evacuated bloud, the malignitie of the Gout, and the hot ſpirits (the cauſers of the head-ach or Megrim) were evacuated. For thus *Galen* wiſheth to open the arteries of the temples in a great and contumacious defluxion falling upon the eyes, or in the Megrim or head-ach.

When and for what it is neceſſary.

13. *meth. cap. ult.*

CHAP. LX.

How to open a veine, and draw bloud from thence.

THE firſt thing is, to ſeat or place the patient in as good a poſture as you can, to wit, in his bed if he be weak; but in a chaire if ſtrong, yet ſo, that the light may fall directly upon the veine which you intend to open. Then the Surgeon ſhall rub the arme with his hand, or a warme linnen cloth, that the bloud may flow the more plenitifully into the vein. Then he ſhall bind the veine with a ligature a little above the place appointed to be opened, and hee ſhall draw back the bloud upwards towards the ligature from the lower part; and if it be the right arme, he ſhall take hold thereof with his left hand; but if the left, then with his right hand, preſſing the veine in the meane time with his thumbe a little below the place where you meane to open it, leſt it ſhould ſlip away; and that it may bee the more ſwolne by forcing up the bloud. Then with his naile hee ſhall marke or deſigne the place to be opened, and ſhall annoint it being ſo marked with butter or oyle whereby the skin may be relaxed, and the lancet enter more eaſily, and therefore the ſection may be the leſſe painefull. He ſhal hold his lancet between his thumb and fore finger, neither too neer, nor too far from the point; he ſhall reſt his other three fingers upon the patients arme, that ſo his hand may be the more ſteddy & leſſe trembling. Then ſhall he open the vein with an inciſion agreeable to the magnitude of the veſſell, & the indifferent thickneſſe of the conteined bloud ſomewhat aſlant, diligently avoiding the artery which lies under the *baſilica*, & the nerve, or tendon of the two-headed muſcle, which lyes under the Median veine. But for the Cephalicke it may be opened without danger. As much bloud as is ſufficient being drawne, according to the minde of the Phyſician, he ſhall looſe the ligature, and laying a little boulſter under, hee ſhall with a ligature bind up the wounded part to ſtay the bleeding; the ligation ſhall be neither too ſtrait, nor looſe, but ſo that the patient may freely bend and extend his arme; wherefore whileſt that is in doing he muſt not hold his arme ſtreight out, but gently bended, otherwiſe he cannot freely bend it.

How to place the patient.

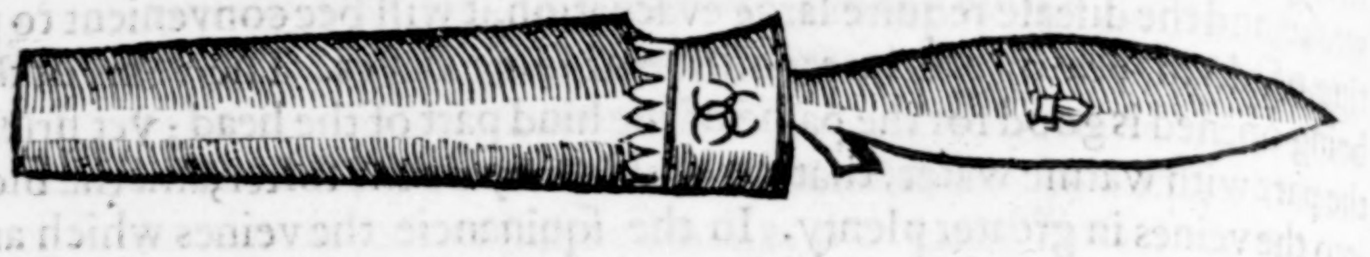
Rubbing the arme.

Binding it before we open the veine.

Why the *baſilica* & median may not be opened ſo ſafely as the cephalick.

The binding up after blood-letting.

The figure of a Lancet to let bloud withall.



Chap. LXI.

Of Cupping-glaſſes, or ventoſes.

The uſe of cupping-glaſſes.

Cupping-glaſſes are applyed eſpecially when the matter conjunct and impact in any part is to be evacuated, and then chiefly there is place for ſcarification after the cupping-glaſſes: yet they are alſo applyed for revulſion and divertion; for when an humour continually flowes down into the eyes, they may be applyed to the ſhoulders with a great flame, for ſo they draw more ſtrongly and effectually. They are alſo applyed under womens breaſts, for to ſtop the courſes flowing too immoderately, but to their thighes for to provoke them. They are alſo applyed to ſuch as are bit by venemous beaſts, as alſo to parts poſſeſſed by a peſtiferous *Bubo* or Carbuncle, ſo to draw the poyſon from within outwards. For (as *Celſus* ſaith) a Cupping-glaſſe where it is faſtned on, if the skin be firſt ſcarified, drawes forth bloud, but if it bee whole, then it draws ſpirit. Alſo they are applyed to the belly, when any groſſe or thick windineſſe, ſhut up in the guts, or membraines of the muſcles of the *Epigaſtrium*, or lower belly cauſing the Collick, is to bee diſcuſſed. Alſo they are faſtned to the Hypocondry's, when as flatulency in the liver, or ſpleene ſwels up the entraile lying thereunder, or in too great a bleeding at the noſe. Alſo they are ſet againſt the Reines in the bottome of the belly, whereas the ureters run downe to draw downe the ſtone into the bladder, when as it ſtops in the middle or entrance of the ureter. You ſhall make choice of greater and leſſer Cupping-glaſſes according to the condition of the part, and the conteined matter. But to thoſe parts whereto theſe cannot by reaſon of their greatneſſe be applyed, you may fit hornes for the ſame purpoſe.

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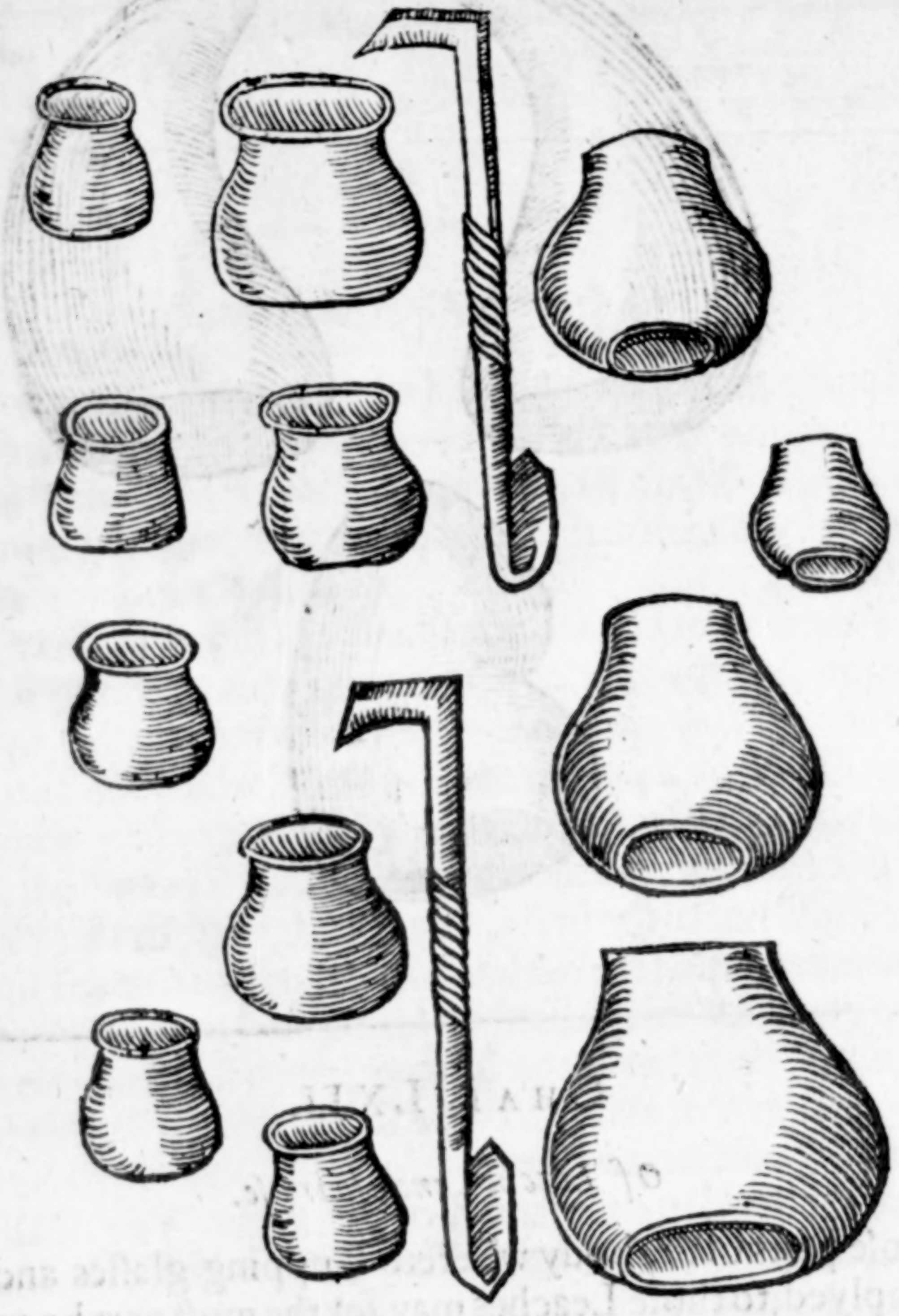
The figures of Cupping-glaſſes of different bigneſſe, with little holes in their bottomes, which ſhall be ſtopped with waxe when you apply them to the part; but opened when you would take them off, that ſo the aire may enter in with the more eaſe.



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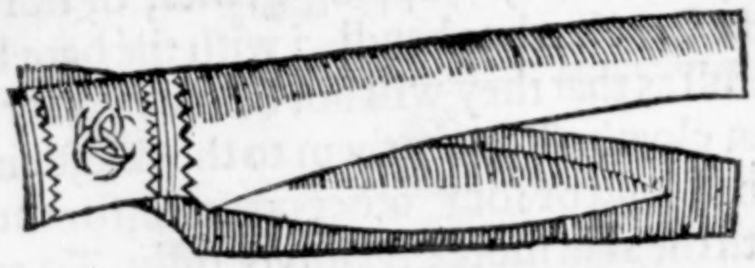
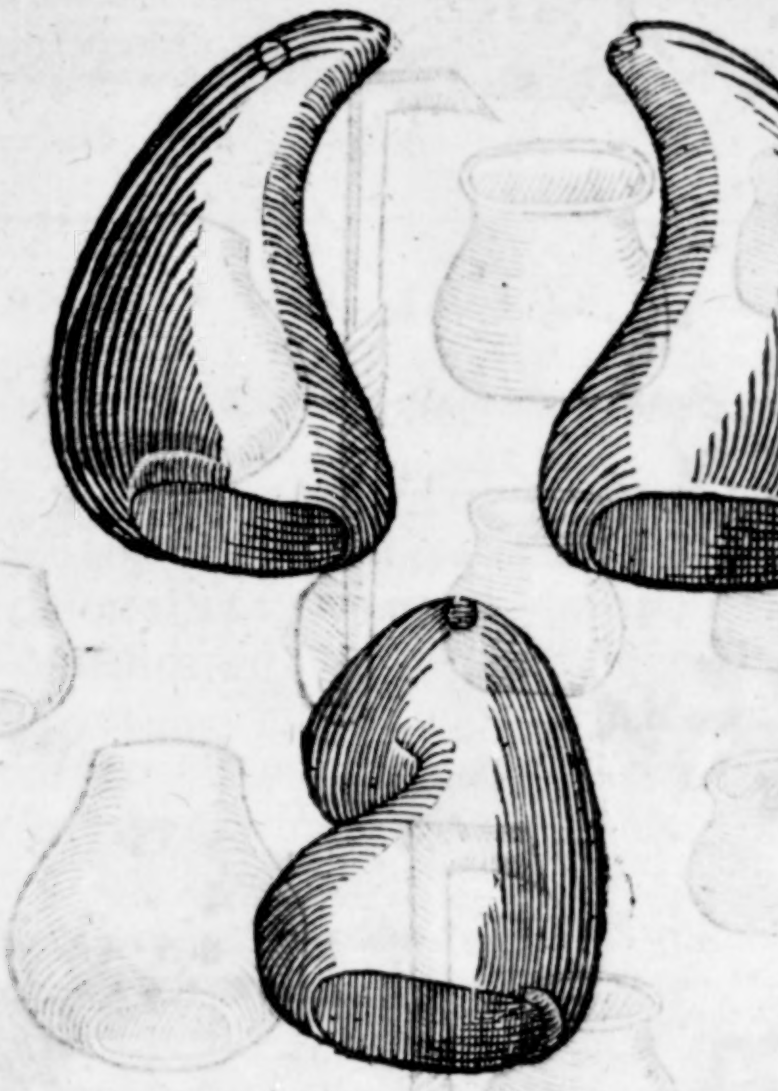


Hornes which without fire, by onely ſucking at the upper hole, draw from the part lying under them.



CHAP. LXII.

Of Leaches, and their uſe.

The uſe of Leaches.

How to apply them.

How to cauſe them to fall off.

IN thoſe parts of the body whereto Cupping-glaſſes and hornes cannot be applyed, to thoſe Leaches may for the moſt part be put, as to the fundament to open the coat of the hæmorrhoide veines, to the mouth of the wombe, the gums, lips, noſe, fingers. After the Leach being filled with bloud ſhal fal off, if the diſeaſe require a large evacuation of bloud, and the part affected may endure it, Cupping-glaſſes, or hornes, or other Leaches ſhall be ſubſtituted. If the Leaches bee handled with the bare hand, they are angred, and become ſo ſtomackfull as that they will not bite; wherefore you ſhall hold them in a white & clean linnen cloath, & apply them to the skin, being firſt lightly ſcarified, or beſmeared with the bloud of ſome other creature, for thus they will take hold of the fleſh, together with the skin more greedily & fully. To cauſe them fall off you ſhall put ſome powder of Aloes, ſalt or aſhes upon their heads. If any deſire to know how much bloud they have drawne, let him ſprinkle them with ſalt made into powder, as ſoone as they are come off, for thus they will vomit up what bloud ſoever they have ſucked. If you deſire they ſhould ſucke more bloud than they are able to containe, cut off their tailes as they ſuck, for thus they will make no end of ſucking, for that it runs out as they ſuck it. The Leaches by ſucking draw the bloud not onely from the affected part whereto they are applyed, but alſo from the adjacent and diſtant parts. Alſo ſometimes the part bleeds a good while after the Leaches be fallen away, which happens not by ſcarification after the application of Cupping-glaſſes or hornes. If you cannot ſtop the bleeding after the falling away of the Leaches, then preſſe the halfe of a beane upon the wound, untill it ſtick of it ſelf, for thus it will ſtay; alſo a burnt rag may be fitly applyed with a little boulſter and fit ligature.

The end of the ſeventeenth Booke.

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OF THE GOUTE.

THE EIGHTEENTH BOOKE.

CHAP. I.

The deſcription of the Goute.

THe Goute is a diſeaſe occupying and harming the ſubſtance of the Joints by the falling downe and collection of a virulent matter accompanied by the foure humors. This word *Arthritis* or Goute, is generall for every joint ſo affected; yet it enjoyes divers particular names in ſundry joints of the body: as that which falleth upon the joint of the Jaw, is termed *Siagonagra*, for that the Greekes call the Jaw *Siagon*; that which affects the necke is termed *Trachelagra*, for that the neck is in Greek termed *Trachelos*: that which troubles the backe bone is called *Rhachiſagra*, for the ſpine is termed *Rhachis*: that which moleſts the ſhoulders *Omagra*, for the joint of the ſhoulder is ſtiled *Omos*: that which affects the joints of the Collar-bones *Cleiſagra*, for that the Greeks call this bone *Cleis*: that in the Elbow, *Pechyagra*, for *Pechis* ſignifieth the elbow: the goute in the hand is called *Chiragra*, in the Hippe *Iſchias*, in the knee *Gonagra*, in the feet *Podagra*, for that the Hand, Hippe, Knee, and Foote are in Greeke termed *Cheir*, *Iſchion*, *Gony*, and *Pous*. When as there is great abundance of humours in a body, and the patient leads a ſedentary life, not ſome one, but all the joints of the body are at once troubled with the Goute.

What it is.

Particular gouts.

CHAP. II.

Of the occult cauſes of the Goute.

THe humor cauſing the Goute is not of a more knowne, or eaſily expreſt nature than that which cauſeth the plague, *Lues venerea*, or falling ſickeneſſe. For it is of a kind and nature cleane different from that which cauſeth a *Phlegmon*, *ædema*, *eryſipelas*, or *Scirrhus*; for, as *Aëtius* ſaith, it never commeth to ſuppuration like other humours, not for that, as I thinke, becauſe it happens in bloodles parts, but through the occaſion of ſome occlut malignity. Hereto may be added that the humours which cauſe the forementioned tumors, when as they fall downe upon any part, not then truly when they are turned into *pus* or matter, do they cauſe ſo ſharpe paines as that which cauſeth the Goute, for the paine thereof is farre more ſharpe, than of that humour which breedeth an ulcerated *Cancer*. Beſides theſe humours, when they fall upon the joints through any other occaſion, never turne into knots, onely that which cauſeth the Goute in the joints,

Lib. 12. cap. 12.

The reſemblance of the Gout to the Epilepſie.

The ſtrange variety of the Gout.

after it hath fallen thither, is at length hardened into a certaine knotty and as it were plaiſter-like ſubſtance to bee amended by no remedies. But ſeing it offends not the parts by which it flowes downe, (no more than the matter which creeping upwards from the lower parts to the braine, cauſeth the *Epilepſie*) as ſoone as it falleth into the ſpaces of the Joints it cauſeth cruell paine, one while with heate, another while with cold. For you may ſee ſome troubled with the Goute, who complaine that their pained Joints are burnt, there are others to whom they ſeeme colder than any ice, ſo that they cannot bee ſufficiently heated to their hearts deſire; verily you may ſometimes ſee in the ſame body troubled with the Goute, that the Joints of the right ſide will as it were burne with heat, but on the left ſide will be ſtiffe with cold; or which is more, the knee in the ſame ſide to be tormented with a hot diſtemper, and the ancle troubled with a cold. Laſtly, there ſometimes happens a ſucceſſion of paine in a ſucceſſion of dayes, as the ſame joints will be this day troubled with a hot, to morrow with a cold diſtemper, ſo that wee need not marvaile to ſee Phyſitians preſcribe one while hot, another while cold medicines againſt the ſame diſeaſe of the ſame part and body. Alſo it ſometimes happens that the malignity of this humour doth not onely not yield to medicines, but is rather made worſe, ſo that the patients affirme that they are far better when they have none, than when they have any remedyes applyed. For all things being rightly done, and according to reaſon, yet the diſeaſe will come againe at certain ſeaſons by fits: and hereupon it is ſayd by *Horace*:

Qui cupit, aut metuit, juvat illum ſic domus aut res,
Ut lippum picta tabulæ, fomenta podagram.

Riches the covetous, and fearefull ſo doe pleaſe,
As pictures ſore eyes, Bathes the Goute doe eaſe.

Certainely ſuch as have this diſeaſe hereditarily, can no more bee helped and throughly freed therefrom, than thoſe in whom the matter of the diſeaſe is become knotty, whereof *Ovid* thus ſpeaketh:

Tollere nodoſam neſcit medicina podagram.

Phyſicke cannot the knotty Goute to heale.

Lib. 3. ſect. 22. tract. 2. cap. 3.

Lib. de ther. ad Piſonem c. 15.

The matter of the gout partakes of occult malignity.

Theſe reaſons have induced many to believe that the eſſence of this diſeaſe is unknowne, for there is a certaine occult and inexplicable virulency, the author of ſo great malignity and contumacy. Which *Avicen* ſeemes to acknowledge, when hee writes that there is a certaine kinde of Goute whoſe matter is ſo acute and maligne, that if it at any time bee augmented by the force of anger, it may ſuffice to kill the party by ſuddaine death. Therefore *Galen* himſelfe writes that Treacle muſt bee uſed in all Arthriticall and gouty affects, and as I think, for no other reaſon, than for that it dries, waſtes and weakens the malignity thereof. *Gordonius* is of the ſame opinion, but addeth withall, that the body muſt be prepared and purged before wee uſe Treacle. Therefore the matter of the gout is a thin and virulent humour, yet not contagious, offending in quality rather than quantity, cauſing extreme paines, and therfore inſtigating the humours together with the caliginous and flatulent ſpirits prepared or ready for defluxion upon the affected parts. Therefore as the bitings of Aſpes, and ſtingings of Waſpes cauſe cruell pain with ſudden ſwelling and bliſtering, which is by the heat of the humours which the poyſon hath tainted, and not by the ſimple ſolution of continuity, ſeeing that we daily ſee Shoo-makers and Taylors pricking their fleſh with aules and needles without having any ſuch ſymptome. Thus the virulencie of the gout cauſeth intolerable tormenting paine, not by the abundance, becauſe it happens to many who have the gout, no ſigne of defluxion appearing in the joints, but onely by a maligne and inexplicable quality, by reaſon whereof theſe paines doe not ceaſe unleſſe abated by the helpe of medicines, or nature, or both. The recitall of the following hiſtories will give much light to that unexplicable

A hiſtorie.

cable and virulent malignity of the matter cauſing the gout. Whileſt King Charles the ninth, of happy memory, was at Burdeaux, there was brought to *Chappellaine* and *Caſtellan* the Kings Phyſicians, and *Taſte* a Phyſician of Burdeaux, *Nicholas Lambert* and my ſelfe Surgeons, a certaine Gentlewoman ſome forty yeares old, exceedingly troubled for many yeares by reaſon of a tumor ſcarce equalling the bigneſſe of a peaſe, on the outſide of the joynt of the left Hippe: one of her tormenting fits tooke her in my preſence; ſhee preſently beganne to cry and roare, and raſhly and violently to throw her body this way and that way, with motions and geſtures above a womans, yea a mans nature. For ſhee thruſt her head between her legges, laid her feete upon her ſhoulders, you would have ſaid ſhee had beene poſſeſſed of the Divell. This fit held her ſome quarter of an houre,; during all which time I heedfully obſerved whether the grieved part ſwelled any bigger than it was accuſtomed, whether there happened any new inflammation; but there was no alteration as farre as I could gather by ſight or feeling, but onely that ſhee cryed out more loudly when as I touched it. The fit paſſed, a great heate tooke her, all her body ranne downe with ſweat, with ſo great wearineſſe and weakeneſſe of all her members, that ſhee could not ſo much as ſtirre her little finger. There could bee no ſuſpicion of an Epileptick fit, for this woman all the time of her agony did perfectly make uſe of all her ſenſes, did ſpeake, diſcourſe, and had no convulſion. Neither did ſhee ſpare any coſt or diligence, whereby ſhee might bee cured of her diſeaſe by the helpe of Phyſicians, or famous Surgeons; ſhe conſulted alſo witches, wizzards and charmers, ſo that ſhee had left nothing unattempted, but all art was exceeded by the greatneſſe of the diſeaſe. When I had ſhewed all theſe things at our conſultation, wee all with one conſent were of this opinion, to apply a potentiall Cautery to the grieved part, or the tumour. I my ſelfe applyed it: after the fall of the Eſchar very blacke and virulent *ſanies* flowed out, which freed the woman of her paine and diſeaſe for ever after. Whence you may gather, that the cauſe of ſo great evill was a certaine venenate malignity, hurting rather by an unexplicable quality than quantity; which being overcome and evacuated by the Cautery, all paine abſolutely ceaſed. Upon the like occaſion, but on the right arme, the wife of the Queenes Coach-man at Amboiſe conſulted *Chappellaine*, *Caſtellan* and me, earneſtly craving eaſe of her paine, for ſhee was ſo grievouſly tormented by fits, that through impatiency, being careleſſe of her ſelfe, ſhee endeavoured to caſt her ſelfe headlong out of her chamber window, for feare whereof ſhee had a guard put upon her. Wee judged that the like monſter was to be aſſaulted with the like weapon, neither were we deceived, for uſing a potentiall cautery, this had like ſucceſſe as the former. Wherefore the bitterneſſe of the paine of the gout is not occaſioned by the onely weakeneſſe of the joints; for thus the paine ſhould be continuall, and alwaies like it ſelf; neither is it from the diſtemper of a ſimple humour, for no ſuch thing happens in other tumours of what kinde ſoever they be of; but it proceeds from a venenate, maligne, occult and inexplicable quality of the matter: wherfore this diſeaſe ſtands in need of a diligent Phyſician and a painfull Surgeon.

A terrible fit.

How an Epileptick fit differs from the gout.

CHAP. III.

Of the manifeſt cauſes of the Gout.

The firſt primitive cauſe of the gout.

ALthough theſe things may be true which we have delivered of the occult cauſe of the gout, yet there be and are vulgarly aſſigned others, of which a probable reaſon may bee rendred, wherein this malignity whereof wee have ſpoken lies hid and is ſeated. Therefore as of many other diſeaſes, ſo alſo of the gout there are aſſigned three cauſes; that is, the primitive, antecedent and conjunct; the primitive is twofold, one drawn from their firſt originall and their mothers wombe, which happens to ſuch as are generated of gouty parents, chiefly if whileſt they were conceived, this gouty matter did actually abound and fall upon the joynts. For the ſeed falls from all the parts of the body, as ſaith *Hippocrates*, and

Lib. de aëre, loc. & aqua.
Lib. 1. cap. 17.

Ariſtole affirmes *lib. de gener. animal.* Yet this cauſes not an inevitable neceſſity of having the gout, for as many begot of ſound and healthfull parents are taken by the gout by their proper & primary default; ſo many live free from this diſeaſe, whoſe fathers notwithſtanding were troubled therewith. It is probable that they have this benefit and priviledge by the goodneſſe of their mothers ſeed, and the laudible temper of the womb; wherof the one by the mixture & the other by the gentle heat, may amend and correct the faults of the paternall ſeed; for otherwiſe the diſeaſe would become hereditary, and gouty perſons would neceſſarily generate gouty; for the ſeed followeth the temper and complexion of the party generating, as it is ſhewed by *Avicen*. Another primitive cauſe is from unordinate diet, eſpecially in the uſe of meat, drink, exerciſe and Venerie. Laſtly by unprofitable humours which are generated and heaped up in the body, which in proceſſe of time acquire a virulent malignity; for theſe fill the head with vapours raiſed up from them, whence the membranes, nerves and tendons, and conſequently the joynts become more laxe and weake. They offend in feeding who eat much meat, and that of ſundry kindes at the ſame meale, who drink ſtrong wine without any mixture, who ſleep preſently after meat, and which uſe not moderate exerciſes; for hence a plenitude, an obſtruction of the veſſels, crudities, and the encreaſe of excrements, eſpecially ſerous. Which if they flow downe unto the joynts, without doubt they cauſe this diſeaſe; for the joints are weake either by nature or accident in compariſon of the other parts of the body: by nature, as if they be looſe and ſoft from their firſt originall; by accident, as by a blow, fall, hard travelling, running in the ſun by day, in the cold by night, racking, too frequent venery, eſpecially ſuddenly after meat; for thus the heat is diſſolved by reaſon of the diſſipation of the ſpirits cauſed in the effuſion of ſeed, whence many crude humours, which by an unſeaſonable motion are ſent into the ſinews & joints. Through this occaſion old men, becauſe their native heat is the more weak, are commonly troubled with the gout. Beſides alſo the ſuppreſſion of excrements accuſtomed to be avoided at certaine times, as the courſes, hæmorrhoides, vomit, ſcowring, cauſeth this diſeaſe. Hence it is, that in the opinion of *Hippocrates*, A woman is not troubled with the gout, unleſſe her courſes faile her. They are in the ſame caſe who have old and running ulcers ſuddenly healed, or *varices* cut and healed, unleſſe by a ſtrict courſe of diet they hinder the generation and increaſe of accuſtomed excrements. Alſo thoſe which recover of great and long diſeaſes, unleſſe they be fully and perfectly purged, either by nature or art, theſe humours falling into the joynts, which are the relicks of the diſeaſe, make them to become goutie; and thus much for the primitive cauſe. The internall or antecedent cauſe is, the abundance of humours, the largeneſſe of the veſſels and paſſages which run to the joynts, the ſtrength of the amandating bowels, the looſeneſſe, ſoftneſſe and imbecility of the receiving joints. The conjunct cauſe is the humour it ſelfe impact and ſhut up in the capacities and cavities of the joynts. Now the unprofitable humour, on every ſide ſent downe by the ſtrength of the expulſive faculty, ſooner lingers about the joynts, for that they are of a cold nature and denſe, ſo that once impact in that place, it cannot be eaſily digeſted and reſolved. This humour then cauſeth paine by reaſon of diſtenſion or ſolution of continnity, diſtemper, and beſides the virulency and malignity which it acquires. But it ſavours of the nature ſomtimes of one, ſometimes of more humors; whence the gout is either phlegmonous, or eryſipilatous, œdematous, or mixt. The concourſe of flatulencies, together with the flowing down humours, and as it were tumult by the hinderance of tranſpiration, encreaſeth the dolorificke diſtenſion in the membranes, tendons, ligaments and other bodies wherein the joint conſiſts.

Li.3.fen.22.tract. 2.cap.5.

Another primitive cauſe of the gout.

Aph.29.Sect.6.

The antecedent cauſe of the gout.

The conjunct.

Five cauſes of the paine of the gout.

CHAP. IV.

Out of what part the matter of the Gout may flow downe upon the joints.

THE matter of the gout commeth for the moſt part from the liver, or brain; that which deſcends from the braine is phlegmatick, ſerous, thin and cleare, ſuch as uſually drops out of the noſe, endued with a maligne and venenate quality. Now it paſſeth out by the muſculous skin and *pericranium*, as alſo through that large hole by which the ſpinall marrow, the braines ſubſtitute, is propagated into the ſpine, by the coats and tendons of the nerves into the ſpaces of the joints, and it is commonly cold. That which proceeds from the liver is diffuſed by the great veine and arteries filled and puffed up, and participates of the nature of the foure humours, of which the maſſe of the bloud conſiſts, more frequently accompanied with a hot diſtemper, together with a gouty malignity. Beſides this maner of the gout which is cauſed by defluxion, there is another which is by congeſtion; as when the too weak digeſtive faculty of the joints cannot aſſimulate the juices ſent to them.

What and how the matter of the gout comes downe from the braine.

Gout by congeſtion.

CHAP. V.

The ſignes of the arthritick humour flowing from the braine.

WHen the defluxion is at hand, there is a heavineſſe of the head, a deſire to reſt, and a dulneſſe with the paine of the outer parts, then chiefly perceptible, when the hairs are turned up, or backwards; moreover, the muſculous skin of the head is puffed up as ſwolne with a certain œdematous tumour; the patients, ſeem to be much different from themſelves by reaſon of the functions of the minde hurt by the malignity of the humour, from whence the naturall faculties are not free; as the crudities of the ſtomack, and the frequent and acride belchings may teſtifie.

CHAP. VI.

The ſignes of a gouty humour proceeding from the liver.

THe right Hypocondrie is hot in ſuch gouty perſons, yea the inner parts are much heated by the bowell; bloud and choler carry the ſway, the veins are large and ſwoln, a defluxion ſuddenly falls down, eſpecially if there be a greater quantity of choler than of other humours in the maſſe of the bloud. But if, as it often falls out, the whole bloud, by meanes of crudities degenerate into phlegme and a wheyiſh humour; then will it come to paſſe, that the gout alſo, which proceeds from the liver, may be pituitous or phlegmatick, and participate of the nature of an *œdema*, like that which proceeds from the braine. As if the ſame maſſe of bloud decline towards melancholy, the gout which thence ariſeth reſembles the nature of a *ſcirrhus*; yet that can ſcarce happen, that melancholy by reaſon of the thickneſſe and ſlowneſſe to motion may fall upon the joynts. Yet notwithſtanding, becauſe we ſpeake of that which may bee of theſe, it will not bee unprofitable briefly to diſtinguiſh the ſignes of each humour, and the differences of gouts to be deduced from thence.

When the gout which proceeds from the default of the liver, aſſimulates the nature of an *œdema*.

Why the gout ſeldome proceeds from melancholy.

CHAP. VII.

By what ſignes we may underſtand this or that humour to accompany the gouty malignity.

YOu may give a gueſſe hereat by the patients age, temper, ſeaſon of the yeare, condition of the country where he lives, his diet and condition of life, the encreaſe of the paine in the morning, noone, evening or night, by the propriety of the beating, pricking, ſharpe or dull paine; by numneſs, as in a melancholy gout or itching; as in that which is cauſed by tough phlegme, by the ſenſible appearance of the part in ſhape and colour (as for example ſake in a phlegmaticke gout, the colour of the affected part is very little changed from its ſelfe, and the neighbouring well parts, in a ſanguine gout it lookes red, in a cholerick it is fiery or pale, in a melancholy livid or blackiſh) by the heat and bigneſſe which is greater in a ſanguine and phlegmatick than in the reſt, by the change, and laſtly by things helping and hurting. And there bee ſome, who for the knowledge of theſe differences wiſh us to view the patients urine, and feele their pulſe, and conſider theſe excrements which in each particular nature are accuſtomed to abound or flow, and are now ſuddenly and unaccuſtomarily ſuppreſt. For hence may be taken the ſignes of the dominion of this or that humour. But a more ample knowledge of theſe things may be drawne from the humours predominant in each perſon, and the ſignes of tumours formerly delivered. Onely this is to be noted by the way, that the gout which is cauſed by melancholy is rare to be found.

CHAP. VIII.

Prognoſticks in the Gout.

The gout frequent in the Spring & Fall. What gout uncurable.

Gal. ad aphor. 49 Sect. 6.

Why the Sciatica cauſeth lameneſſe.

BY the writings of Phyſitians the paines of the gout are accounted amongſt the moſt grievous and acute; ſo that through vehemency of pain many are almoſt mad, and wiſh themſelves dead. They have certain periods and fits according to the matter and condition of the humour wherein this maligne and inexplicable gouty virulency reſides. Yet they more frequently invade in the Spring and Autumne; ſuch as have it hereditarie are ſcarce ever throughly free therefrom, as neither ſuch as have it knotty: for in the former it was borne with them, and implanted, and as it were fixed in the originall of life: but in the other the matter is become plaiſter-like, ſo that it can neither be reſolved nor ripened: that which proceeds from a cold and pituitous matter, cauſeth not ſuch cruell tormenting pain, as that which is of a hot, ſanguine or cholerick cauſe, neither is it ſo ſpeedily healed, for that the hot and thin matter is more readily diſſolved; therefore commonly it ceaſeth not untill fourty dayes bee paſt: beſides alſo, by how much the ſubſtance of the affected part is more denſe, and the expulſive facultie more weake, by ſo much the paine is more tedious. Hence it is, that thoſe gouty paines which moleſt the knee, heele and huckle bone, are more contumacious. The gout which proceeds of a hot matter, reſts not before the fourteenth or twentieth day. That which is occaſioned by acride choler, by the bitterneſſe of the inflammation and pain cauſeth a difficulty of breathing, raving, and ſundry times a gangrene of the affected part, and laſtly death; and healed, it often leaves a palſie behinde it. Amongſt all the gouty paines, the Sciatica challengeth the prime place, by the greatneſſe of the paine and multitude of ſymptomes; it brings unquietneſſe and watching, a feaver, diſlocation, perpetuall lameneſſe & the decay of the whole legge, yea and often times of the whole body. Now lameneſſe, and leanneſſe or decay of the part are thus occaſioned, for that the decurrent humour forceth the head of the thigh-bone out of the cavity of the huckle-bone; this being forced out preſſeth the muſcles, veines, arteries, and that notable and large nerve which runs alongſt the thigh even to the furtheſt joynts of the toes, and by the way is diverſly diſperſed over the muſcles of the whole leg. Therefore becauſe the head of the thigh is put out of its place, the patient is forced to halt; becauſe the veſſels and nerves are oppreſſed, the nouriſhment and ſpirits doe not freely flow into the parts thereunder, whence proceeds their decay. Yet it ſundry times happens, that the head of the thigh being not diſplaced, many halt becauſe the viſcide humour, which is naturally implanted in that place and continually flowes thither, both for the nutrition of theſe parts, and the lubrication of the joynt for quicker motion, is hardened by heat and idleneſſe, and the other unprofitable humours which flow downe do there concrete, and ſo intercept the liberty of motion. A groſſe and viſcide humour into what joint ſoever it falleth and ſtayeth, doth the ſame. For by concretion it turnes into a plaiſter like nature at or neare the joynt, poſſeſſing the cavities thereof, and it depraveth the figure of the part, making it crooked and knotted, which formerly was ſtreight and ſmooth. Furthermore every diſtemperature cauſed by the defluxion of humours, if it ſhall lye long upon any part, depraves all the actions, and oft-times wholly aboliſheth them; ſo that there may bee three cauſes of the leaneneſſe or decay of the joint by the gout, the obſtruction or compreſſion of the veſſels, idleneſſe and a hectick diſtemper: but two of lameneſſe, diſlocation and the concretion of an adventitious humour impact in the joynt. If contrary to cuſtome and reaſon the paines of the gout doe not goe away or returne at their accuſtomed periods, moſt grievous and dangerous diſeaſes thereon follow; for the matter accuſtomed to flow downe into the joints, if it ſeaze upon the ſubſtance of the liver, cauſes a Phlegmon; if it ſtay in the larger veines, a continuall feaver; if it flow into the membrane inveſting the ribs, a Pleuriſie; if it betake it ſelfe to the guts and adhere to their coats, the Collick or *Illiaca paſsio*; and to conclude, it produceth divers other ſymptomes, according to the diverſity of the parts whereto it flowes and abides. For thus ſundry that have beene troubled with the gout, become paralitick, becauſe the matter which formerly flowed downe into the joints, ſtayes in the ſubſtance and pores of the nerves, and ſo hinders the ſpirit that it cannot freely in its whole ſubſtance paſſe though them: hence therfore comes the reſolution of the part, whereinto the nerve is inſerted. Old men can never be quite or abſolutely cured of the gout, for that the maſſe of their bloud is ſo departed from its primary & native goodneſſe, that it can no more bee reſtored, than dead or ſowred wine. The gout which proceeds from a cold cauſe, invadeth ſlowly and by little and little, and is helped by the uſe of hot things; that which is from a hot matter, quickly ſhewes it ſelfe, and is helped by the uſe of cold things. Now, although the gout more frequently returnes in the ſpring and fall, yet it comes in the midſt of winter, the nerves being weakened by the exceſſe of cold, and the humours preſſed out; otherwhiles in the midſt of ſummer, the ſame being diffuſed and diſſipated. Laſtly, it comes at any time or ſeaſon of the year, if thoſe who are ſubject to this diſeaſe feed plenteouſly, and do all things according to their owne mindes and deſire. Thoſe who are troubled with the gout, feele and perceive change of weather, ſtormes, raines, ſnowes, windes and ſuch like, before they come. A ſoutherly conſtitution of the aire, for example, fils the body with humidities, and ſtirs up the humours that lye quiet in the body, and therefore cauſe defluxions upon the weaker parts, ſuch as the joints, both by nature, as being without bloud and fleſh, as alſo by accident, for that they a long time have been accuſtomed to bee ſo tormented; therefore their paines are increaſed in a wet ſeaſon. Many of theſe that are troubled with the gout, deſire venery in the bitterneſs of their paine, becauſe the internall heat wherewith they then are inflamed doth not diſſipate into ſpirits and aire, as the feaveriſh heat doth, but diſſolves, and as it were melts downe the ſeminall humour, which diſſolved, flowes to the genitalls, filleth and diſtends them. The ſame thing befalls carryage and running horſes, for in theſe by labour, much heat ſends flatulencies to the bottome of the belly. Yet venery is very hurtfull to ſuch as are troubled with the gout, becauſe it diſſipates the ſpirits and native heate, and encreaſeth the unnaturall heat; whereby it commeth to paſſe that the nervous parts are weakened, and the paine exaſperated. Rich men, that is, ſuch as feed riotouſly on variety of dainties, and in the meane ſpace live idlely and lazily

Three cauſes of the lameneſſe or decay of the limbes.

How the gout turnes into the palſie.

Why the gout takes one in winter and the midſt of ſummer.

Why ſuch as have the gout upon them, doe oft-times deſire Venery.

Venery hurtfull in the gout.

are more frequently and cruelly tormented with the gout than poore people, who live ſparingly and hardly: Wherefore there have been ſeene not a few of ſuch rich and riotous perſons, who having ſpent their eſtates, have therewith changed their health, together with their fortune and diet, and ſo have been wholly freed from the gout.

Chap. IX.

The generall method of preventing and curing the Gout.

THoſe who deſire to prevent the gout, muſt not glut themſelves with meat, muſt be quick to labour, and abſtaine from wine and Venery, or certainly muſt not uſe them, unleſſe for their healths ſake, muſt vomit and purge at certaine times. *Hippocrates* writes, that boyes are not troubled with the gout before the uſe of venery. Yet at this day many Eunuches are ſeene to have the gout, but eſpecially thoſe who abound with idleneſſe and pleaſure, yet theſe we have heretofore mentioned are very effectuall, not onely for the prevention, but alſo for the cure of the preſent diſeaſe. Yet wee muſt diligently diſtinguiſh the cauſes, what they be, & whence they may proceed, & oppoſe thereto remedies contrary in quantity and quality. There are abſolutely three diſtinct cauſes of the gout; A tainture from the parents; a corruption of the humours by diet and aire; a native, or adventitious weakeneſſe of the joints. Againſt theſe there is a twofold indication; the firſt is the evacuation and alteration of the peccant humours, the other the ſtrengthening of the weake joints. Theſe two ſhall be performed by diet conveniently appointed, purging, blood-letting, provocation of the hæmorrhoids, courſes, vomit, ſweat, urine, and fit application of locall medicines. Therefore, when the time ſhall come, wherein the gout accuſtometh to returne by courſe, the patient ſhall have a care of himſelfe by a diligent manner of diet, hee ſhall leſſen the matter of the diſeaſe by phlebotomie (if that the gout ſhall ariſe from the blood) from the oppoſite part, that by the ſame meanes revulſion and evacuation may bee made; as if the upper parts bee inflamed, blood ſhall bee drawne from the lower; if on the contrary the lower, out of the upper, alwayes obſerving the ſtreightneſſe of the fibres. Thus the right arme being troubled with a gouty inflammation, the *Sapheia* of the right legge ſhall bee opened, and ſo on the contrary; but if this generall blood-letting being premiſed, the paine ſhall not ceaſe, it will be requiſite to open the veine next to the paine, which I have often performed with happy ſucceſſe.

Aph.30.Sect.6.

Two generall ſcopes of curing the gout.

Whence bloud muſt be let in the gout.

Yet phlebotomie hath not the like effect in all, for it is not availeable to ſuch as are continually and uncertainly troubled with gouty paines, or whoſe bodies are weake and cold, wherein phlegme onely is predominant. Wee may ſay the ſame of purging, for though it bee oft-times neceſſary, yet too frequently re-iterated, it proves hurtfull; furthermore, neither of theſe remedies is uſually very profitable to ſuch as obſerve no order in meate and drinke, which uſe Venery too intemperately, who abound with crude and contumacious humours; whoſe joynts by long vexation of the diſeaſe, have contracted a hectick diſtemper and weakeneſſe, ſo that they are departed from their naturall conſtitution, and ſuffered a great change of their proper ſubſtance. Wherefore as often as theſe greater remedies ſhall be uſed, a Phyſician ſhall be called, who according to his judgement may determine thereof. For oft-times diet proveth more availeable than medicines: therefore the Patient (if the matter of the gout bee hot) ſhall either drinke no wine at all, or elſe very much allayed, that is, as much as his cuſtome and the conſtitution of his ſtomacke can endure. A fit time for purging and bleeding is the Spring and Autumne, becauſe, according to the opinion of *Hyppocrates*, gouts reigne chiefely in theſe ſeaſons; in Autumne, for that the heate of the precedent Summer debilitateth the digeſtive faculty, the native heate being diſſipated: as alſo the eating of Summer fruits hath heaped up plenty of crude humours in the body, which eaſily flow downe into the paſſages of the joynts opened and dilated by the Summers heate:

What gouty perſons find no benefit by phlebotomy.

In what gout diet proves more effectuall than medicines.

Aphor.55.Sect.6.

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adde hereunto that the inequality or variableneſſe of Autumne weakeneth all the nervous parts, and conſequently the joynts. But in the Spring, for that the humours forced inwards by the coldneſſe of the winter, are drawn forth from the center to the circumference of the body, and being attenuated, fall into the joints upon a very ſmall occaſion. Therefore there is great both neceſſity and opportunity for evacuation, which if it ſhall not avert the accuſtomed fit, yet it will make it more gentle and eaſie.

CHAP. X.

Of Vomiting.

To what gout vomiting is to be uſed.

What time the fitteſt therfore.

VOmiting is by all the Ancients exceedingly commended, not onely for the prevention, but alſo for the cure, eſpecially when as the matter floweth from the braine and ſtomacke ; for the phlegmatick, ſerous and cholericke humours, which uſually flow from the joints, are excluded and diverted by vomit, and alſo there is attenuation of that phlegme, which being more thicke and viſcide, adhereth to the roots of the ſtomack : yet you muſt conſider and ſee that the patient bee not of too weake a ſtomacke and braine, for in this caſe vomiting is to bee ſuſpected. For the time, ſuch as have excrementitious humours flowing downe to the ſtomack through any occaſion, as by exerciſe and motion, muſt vomit before they eate ; on the contrary, ſuch as are overcharged with an old congeſtion of humours, muſt vomit after they have eaten ſomething. Certainly it is ſafer vomiting after meat, then it is before. For the dry ſtomacke cannot, unleſſe with great contention and ſtraining, free it ſelfe from the viſcide humours impact in the coats thereof ; and hence there is no ſmall danger of breaking a veine or artery in the Cheſt or Lungs, eſpecially if the patient bee ſtrait cheſted, and long necked, the ſeaſon cold, and hee unaccuſtomed to ſuch evacuation.

A hiſtory.

How to make one vomit eaſily.

Lib. de vict. victu.

I remember that with this kind of remedy I cured a certaine Gentleman of Geneva, grievouſly moleſted with a cruell pain in his ſhoulder, and thereby impotent to uſe his left arme ; the Phyſicians and Surgeons of Lions ſeemed to omit nothing elſe for his cure. For they had uſed purging, phlebotomie, hunger, a Diet drinke of *Gudiacum* and *China* (although his diſeaſe was not occaſioned by the *Lues Venerea)* and divers other topick medicines, neither yet did they any thing availe. Now learning by him that hee was not apt to vomit, but that it was difficult to him, I wiſhed him to feed more plentifully, & that of many & ſundry meats, as fat meat, onions, leeks ; with ſundry drinks, as beare, ptiſan, ſweet and ſharpe wine, and that hee ſhould as it were overcharge his ſtomack at this meal, and preſently after get him to his bed ; for ſo it would happen, that nature not enduring ſo great confuſion & perturbation of meats & drinks, wherof ſome were corrupted already in the ſtomack, & otherſome ſcarce altered at all, nature not enduring this confuſion and perturbation, would eaſily and of its owne accord provoke the ſtomack to vomit ; which that it might the better ſucceed, he ſhould helpe forward natures endeavour, by thruſting his finger or a feather into his throat, that ſo the thick and tenacious phlegme might by the ſame meanes be evacuated : and not content to doe thus once, I wiſhed him to doe the like the ſecond & third day following, for ſo it verifieth that ſaying of *Hippocrates* : The ſecond and third day exclude the reliques of the firſt : afterwards, that hee ſhould vomit twice a moneth : chaw maſtick faſting : rub his necke and the pained part with *aqua vitæ*, ſtengthened by infuſing therein lavender, roſemary, and cloves groſly beaten : confirme his arme by indifferent exerciſe : hee performed all this, and ſo became free from his paine, and recovered the uſe of his arme. Thoſe who do not like ſuch plentifull feeding, ſhall drink a great quantity of warm water wherein radiſh roots have been boiled, and they ſhall have a care leſt by uſing their ſtomacks to this excretion by vomit they weaken the digeſtive and retentive faculty thereof. Wherefore ſuch as can naturally, ſhall thinke it ſufficient to vomit twice a moneth.]

CHAP. XI.

The other generall remedies for the Gout.

How Diureticks are good for the gout.

Iſſues or fontanels.

Where to be made.

An actuall cautery.

Pills.

Common pills with the addition of ſcamony.

Treacle, how uſefull in the gout.

Cephalick fumigation.

THe defluxion of ſerous humours is very fitly diverted from the joints by the urine by the uſe of diureticke medicines. Therefore the roots of Sorrell, parſly, *ruſcus*, *aſparagus*, and graſſe, and the like, ſhall bee boyled in broth, and given to ſuch as have the gout: for when the urine floweth much and thick, the paine is leſſened. Many have found benefit by iſſues; for the Arthritick malignity flowes forth of theſe, as by rivelets: experience ſhewes it in ſuch as are troubled with the *Lues Venerea*, for in thoſe that you cannot overcome the malignity by the proper antidote, that is, Quickſilver, they feele no greater eaſe of the pain, than by application of Cauſticks, and making of iſſues. They ſhall bee made in ſundry places according to the difference of the pained joints, to wit, in the beginning of the neck, if the defluxion proceed from the braine, and fall into the joints of the Collar-bones or ſhoulder; if into the Elbow or hand, under the muſcle *Epomis*; if into the hip, knees, and feete, ſome three fingers breadth under the knee, on the inſide: for thus there will follow more plentifull evacuation, by reaſon that the *Sapheia* runneth downe that way. Yet if the patient bee troubled with much buſineſſe, and muſt travell much on horſe-back, then ſhall they be made on the outſide of the legge, betweene the two bones thereof, that ſo they may trouble him the leſſe in riding. If any had rather uſe an actuall cautery, let him take ſuch an one as is triangular and ſharpe, that ſo hee may with more ſpeed and leſſe paine performe that which hee intends, and let him thruſt it through a plate of iron which hath a hole therein, and let the place bee marked leſt hee ſhould erre; the ulcer ſhall be kept open by putting in a pill of gold, ſilver, lint, of the root of orris, hermodactiles, gentian, waxe, wherewith ſome pouder of vitrioll, mercurie or allum ſhall be incorporated, leſt it ſhould fill up with fleſh ſooner than the Phyſician ſhall thinke fit. In the meane ſpace, the head, oft-times the originall of the evill, ſhall be evacuated by taking in the winter the pills *cochiæ*, and *de Aſſajereth*; but in ſummer *ſine quibus*, or *Imperiales*, before the Full of the Moone. ℞. *pul. hyeræ ſimp.* ʒi. *agar. recent. troch. & rhei an.* ʒii. *myroball. chebul.* ʒß. *tamarind.* ℈ii. *cum infuſione ſenæ, fiat maſſa de qua formentur pill.* vi. *pro drachma*; let the patient take two before ſupper every eighth day; the day after he ſhall drinke ſome broth of the decoction of Cicers and the Diureticke roots. Alſo theſe following pills will bee good to purge the phlegmaticke and ſerous humour. ℞. *pillular. fœtid. & de hermodactil. an.* ʒß. *formentur cum ſucco vel ſyrup. roſar. ſolut.* Or elſe, ℞. *aloës.* ʒiii. *agarici trochiſ. & rhei, an.* ʒi. *maſſæ pilul. arthrit. & de hermodact. an.* ℈ii. *diacrid.* ℈i. *cum melle roſato fiat maſſa, capiat pondus,* ʒi. as the Phyſician ſhall thinke fit, by whoſe advice theſe ſhall be uſed and changed as occaſion ſhall offer it ſelf, and the nature of the humour cauſing the diſeaſe. The day after the purging, the patient ſhall take three houres before meat half a dram of Treacle, to ſtrengthen the entrailes: pils are preferred before liquid medicines, for that by their long ſtay in the ſtomack they eaſily attract the noxious humor from the brain, & the other more diſtant parts. I have known ſome Phyſicians who mixing with ordinary pils a good quantity of ſcamony, as 7. or 8. grains, with a little ginger, leſt it ſhould hurt the ſtomack, have purged by ſtool a great quantity of ſerous humours; the day following they gave barly creame to correct the harme which the ſcamonie may have done to the ſtomacke. Others for the ſame purpoſe give treacle, which doth not onely ſtrengthen the entrailes, but alſo weakens the virulencie of the gouty malignity; the orifice of the ventricle muſt be ſhut after meate, that ſo the vapours aſcending to the braine may bee reſtrained: for this purpoſe common Drige powder, Marmelate, or conſerve of roſes are good. In a wet ſeaſon uſe Cephalicke perfumes thus made. ℞. *thuris, vernicis, & maſtich. an.* ʒi. *granorum juniperi, baccarum lauri, an.* ℥ß. *ligni aloës* ʒii. *aſſæ odoratæ* ʒi.ß. Let them bee groſly beaten; let the fume be received in tow or carded Cotton, and ſo applyed to the head. Alſo the excrementitious humours ſhall bee dried up by the following powder ſtrowed on the patients head for fifteene dayes. ℞. *fol. roſ. rub. ſenæ, ſtæchad. utriuſque an.* m. ß. *milii,* ℥iiii. *furfuris loti in vino albo,* ℥ iii. *florum chamæm. melil.*

melil. an. p i. *ſem. aniſi,* ℥ i. *ſalis com.* ℥ ii. *fiat omnium pulvis.* Let it be put into linnen bagges, with which, being warmed at the fire in a frying-pan, and kept with ſtirring, the head ſhall bee rubbed. Let the following medicine bee chawed, and kept in the mouth in the forme of a maſticatory, in the time of the falling downe of the defluxion. ℞. *cubelarum, nucis moſchat. glycyrrhiz. aniſ. an.* ʒ i. *pyrethri,* ʒ ii. *maſtich. rad. ſtaphiſagr. eryngii, an.* ʒii. Let them all be made into pouder, and mixed together, & tyed up in a little taffaty to the bigneſſe of a haſell nut, and let them be rowled up and downe the mouth with the tongue to cauſe ſpitting or ſalivation. Working with the hands, and frictions of the armes, eſpecially in the morning after the evacuation of the excrements, are good for ſuch as are troubled with the Gout in the feet, for ſo, it not onely cauſeth revulſion from the feet, but alſo the reſolution of that which is unprofitable.

Cephalicke bagges

A maſticatory.

CHAP. XII.

What Diet is convenient for ſuch as have the Goute.

AFTER the body is once fed, they muſt not returne to meat before that the concoction be perfected in the ſtomacke, leſt the liver be forced to draw by the meſaraicke veines that which is yet crude and ill digeſted, and as it were forced thence. Whence the depravation of the nutriment of the whole body; for the following decoctions doe not amend the default of the firſt. Let them make choice of meate of good juice and eaſie digeſtion, roſted for ſuch as are phlegmaticke, but boiled for ſuch as are cholericke: as they ſhall ſhun much variety at one meale, ſo muſt they eſchew the uſe of pulſes, milk-meats, ſallads, and ſharpe things, as verjuice, vinegar, the juice of oranges, and citrons. They ſhall not eat unleſſe they be hungry, and ſhall deſiſt therefrom before they be fully ſatisfied, if it be but for this, that whileſt the native heat is buſied in the digeſtion of meat plenteouſly eaten, it is diverted from the concoction of the noxious humors. The fleſh of great fowle, as ſwans, cranes, peacockes are not of laudible juice, and are with more difficulty digeſted in the ſtomacke. Some of the antients have diſallowed of the eating of Capons, and the like birds, becauſe they are ſubject to bee troubled with the Goute in the feete. Fiſhes are to be ſhunned, for that they heape up excrementitious humours, and are eaſily corrupted in the ſtomacke, yea & relaxe it by continuall uſe. Of the fleſh of beaſts veale is moſt to be commended, for that it breeds temperate blood, and laudible juice, and is eaſily digeſted. Neither in the meane time is mutton to bee found fault withall. But the like hunger or abſtinence muſt not be appointed to all men troubled with the Goute, for ſuch as are of a ſanguine and cholericke complexion, becauſe they are endued with much, and much waſting heate, are to be refreſhed with more plentifull nouriſhment; for hunger ſharpens choler, and ſo augments their paines; neither in the interim muſt they bee fed with too moiſt meates, for too much moiſture, beſides that it is the author of putrefaction, will cauſe defluxions, and draw downe the matter to the joints. Therefore the Cholericke humor muſt bee incraſſated and refrigerated by taking things inwardly, and applying things outwardly, leſt by its tenuity it ſhould fall downe into the grieved parts. To this purpoſe conduce brothes altered with lettuce, purſlaine, ſorrell, and the like herbs, and barly creames made with a decoction of the foure cold ſeeds. Phlegmaticke bodies, by reaſon that they have not ſo vigorous heate, doe as it were carry their provant about them, wherefore they muſt not be fed, neither with many nor with moiſt meats. All that are troubled with the Goute muſt ſhun thoſe things which are hard of digeſtion, and which are ſoone corrupted, for they all have a certain remiſs feaver which diminiſheth the native heat, & makes the meates apt to putrefie. Too plentifull drinking not onely of wine, but alſo of any other liquor is to be avoided. For by too great a quantity of moiſture the meat floats in the ſtomacke, and the native heat is in ſome ſort extinguiſhed, whence proceed crudities. Some phyſitians commend the uſe of white wine, for that it provokes

The fault of the firſt concoction, is not amended in the after.

Capons ſubject to the Gout.

Cholericke perſons cannot away with long faſting.

Phlegmaticke bodies in faſting feed upon themſelvs.

White wine not good for the gout.

Claret may be the ſafelier drunke.

Hydromel moſt ſafely.

A *hydroſaccharum.*

vokes urine, which is not altogether to be diſallowed if ſo be that the body bee free from excrements, otherwiſe by this, as it were a vehicle, eſpecially if the temperature of the body be ſomewhat more hot, they ſhall be carryed down into the joints. Therfore in ſuch a caſe I ſhould rather adviſe them to uſe claret, which is ſomewhat weake and aſtringent, for that it doth not ſo much offend the head nor joints, and it ſhuts and ſtrengthens the orifices of the veſſels. Yet it will bee more convenient wholly to abſtaine therefrom, and in ſtead thereof to drinke a *Hydromel* made after this manner. ℞. *aquæ* ℔. iiii. *mellis opt*. q. i. *bulliant ad conſumptionem* ℔. i. *bene deſpumando, adde ad finem, ſalviæ* p. i. *imo ſi æger ſit pituitoſus, cinamomi aut caryophyllorum momentum*. For cholerike perſons make a ſugred water thus. ℞. *aquæ fontis* ℔. iiii. *ſacchari* ℔. ß. *colentur per manicam ſine ebullitione, addendo in fine cinamomi* ʒ. ii. For thus the ſtomacke ſhall alſo be ſtrengthened; alſo he may drinke *ptiſan*, wherein at the end of the decoction ſhall bee boiled ſome dryed roſes, or elſe ſome ſyrupe of pomegranates added thereto, leſt it ſhould offend the ſtomack; as ſoone as it comes from off the fire, let it ſtand and ſettle, and then ſtraine it through an Hippocras bag, or cleane linnen cloath.

CHAP. XIII.

How to ſtrengthen the Joints.

IT is a matter of much conſequence for the prevention of this evill, to ſtrengten the joints, whereby they may be able to reſiſt the humors preternaturally falling downe upon them. Wherefore it is good morning and evening to rubbe them with *Oleum Omphacinum*, that is, oile made of olives not come to their perfect maturitie; or with oile of roſes mixed with common ſalt finely poudered. It may alſo bee mixed with common oile, adding thereto the powder of harts horne, as that which hath an aſtringent and drying faculty. Alſo it is good to bath them in this following Lye. ℞. *cort. granat. nucum cupreſ. gallarum, ſumach. cortic. querni, an.* ℥ ii. *ſalis com. alumin. roch. an.* ℥ i. *ſalviæ, roriſmar. lavendul. lauri, ivæ arthretic. an.* m. i. *roſar. rub.* m. ß. *bulliant omnia in ſex* ℔. *vini craſſi & aſtringentis & lixivio parato ex aqua chalibeata & cinere querno.* Then foment the part with ſponges or cotton clothes; after this fomentation ſhall be carefully wiped & dryed with hot linnen clothes, taking heed of cold. The juice of unripe Hawes tempered with oxycrate is a ſingular thing for this purpoſe. But if you deſire to ſtrengthen the joints weakened by a cold cauſe, then, ℞. *ſalviæ, roriſm. thymi, lavendul. laur. abſinth. an.* m. i. *caryophyl. zinzib. piperis, conquaſſatorum an.* ℥ i. *infundantur in aqua vitæ & vini rubri aſtringentis, an.* ℔. iiii. *bulliant leniter in balneo mariæ.* With this liquor foment the joints morning and evening. Some thinke it good to ſtrengthen the joynts, to tread grapes in vintage time, which if they be not able to doe, then let them waſh their feete in the Muſte or new preſſed Wine. Alſo bagges may be thus made for the ſame purpoſe. ℞. *ſalis com. alum. roch. cort. granat. ſumach. berberis, nucum cupreſſi, an.* ℥ iiii. *fol. ſalviæ, roriſmar. roſar. rub. an.* m. ß. Let them be all put in linnen bags and boyled in Lye, and ſo make a decoction for to foment the joynts.

A fomentation to ſtrengthen the joints.

The juice of hawes with oxycrate.

Bagges.

CHAP. XIIII.

Of the Palliative Cure of the Goute and the materiall cauſes thereof.

HEre alſo muſt we conſider the cauſes whence this diſeaſe proceeds, the temper of the diſeaſed body, the parts affected, & thoſe from whence it proceeds. For as theſe are not alwayes alike, ſo neither can one and the like remedy be uſefull in every Goute. For firſt thoſe which proceed of a cold cauſe require other remedies, than thoſe which ariſe from a hot, and that which proceeds from any one ſimple humour, than that which ariſeth from divers mixed together. For Choler alone cauſeth cruell paines, but tempered by the admixture of Phlegme, it becomes more gentle. Furthermore ſome remedies are good in the beginning, ſome in the encreaſe, and ſome at other times. Neither may we uſe repercuſſives in the Sciatica, as we may in the Goute of the feet and other joints; unleſſe peradventure the part be fearefully enflamed. Taking theſe things to conſideration we muſt obſerve that the Palliative cure of that Gout, which cannot abſolutely be helped, as that which is hereditary and inveterate, is performed by foure ſcopes. The firſt is, by appointing a convenient diet in the ſixe things which are termed not naturall. The ſecond by evacuating and diverting the antecedent matter, both by purging and phlebotomy. The third, by applying topicke medicines according to the condition of the morbificke humour and nature of the part. The fourth, by correcting the ſymptomes, but eſpecially the paine, whereof in theſe affects there is oft times ſo great exceſſe by reaſon of the unexplicable and invincible malignity of the virulent quality aſſociating the humour, that it alone is oft times ſufficient to kill the patient. And becauſe the variety of morbificke cauſes, brings a variety of remedies, fitted to theſe foure intentions, therefore it behoves a phyſitian to be moſt attentive in the diſtinction of the cauſes. For he may be eaſily deceived and miſtake one for another; for arthritick pains proceeding from a cold matter, if they be mitigated by the application of Narcoticke and cold medicines, it may induce us to beleeve that the materiall cauſe is hot, though really it bee not ſo; for Narcotickes aſſwage paine, not for that they are contrary to the cauſe thereof, but becauſe they take away the ſenſe by inducing a numneſſe; on the contrary, the materiall cauſe may ſometimes ſeeme cold, which notwithſtanding is hot, for that it becoms better by application of hot medicines, that is, by taking an argument from that which helps, becauſe contraries are cured by contraries, and the like preſerved by the like. But herein conſiſts the error, for that hot medicines profit not by their contrariety, but by the attenuation of the groſſe matter, by the rarefaction of the skin and diſſipating them into aire. Whence you may gather that an argument drawne from that which helpes and hurts, is very deceitfull: moreover it may happen that a large quantity of cold matter flowing down from the brain, may cauſe great pain by reaſon of the virulency, & a ſmall quantity of choler mixed therwith, which ſerves for a vehicle to carry down the tough and ſlow phlegme into the joints, whence the patient becomes thirſty and feavouriſh by reaſon of the heate and inflammation of theſe parts, whereby ſuch as are leſſe cautelous and heedy will eaſily be induced to beleeve that ſome hot matter is the occaſion of this Gout. Now when as not ſome one ſimple humour, but different by reaſon of mixture, cauſeth the Gout, the yellowiſh colour of the part may deceive one, as, if the evill matter ſhould proceed from choler onely, which by the tenuity of its ſubſtance leaving the center, eaſily poſſeſſeth the circumference of the body or part: & notwithſtanding much phlegm being as it were enraged by the admixtion of a little choler, may be the chiefe cauſe of the diſeaſe, and may peradventure be diſcovered by the encreaſe of paine in the night ſeaſon. A feaver ariſing by meanes of paine and watching may encreaſe the conceived opinion of choler, which attenuating and diffuſing the humours, drives them into the joynts, and cauſeth fiery urines, tinctured with much choller, and a quicke pulſe. Yet notwithſtanding the Phyſitian ſhall be in errour, if deceived with theſe appearances, he attempt the cure of this Gout, as ariſing from a hot, and not from a cold cauſe: yet I am not ignorant that the cure of the proper diſeaſe muſt be

The ſcopes of curing

Repercuſſives not to be uſed in the *ſciatica.*

The palliative cure performed by foure ſcopes.

An argument taken from that which helpeth, or giveth eaſe, is not alwaies certaine.

How cold diſeaſes may be helped by cold, and hot by hot medicines.

The firſt thing that may deceive a Phyſician.

The ſecond.

The third.

The fourth.

The fift.

The ſixt.

Why ſtrong purges muſt bee given to ſuch as have the gout.

That judgement moſt certain which reſts upon multiplicity of ſignes.

Why we muſt uſe purging and bleeding in the gout.

Lib. de affect. ubi de Arthrit. loquitur.

Ad aph. 23. ſect. 1.

Lib. de cur. per ſang. miſsionem.

neglected for the cure of the ſymptomes. Beſides alſo it may come to paſſe, that choler may be the cauſe of the Gout, and notwithſtanding no ſignes therof may appeare in the skin, and ſurface of the affected part, becauſe the coldneſs of the ambient aire, and the force of applyed Narcoticks may have deſtroyed the colour of the juices lying therunder, and as it were imprinted a certain blackneſſe. It alſo happens, that the body being overcharged with a great quantity of groſſe and viſcide humours, the expulſive faculty may diſcharge ſome portion thereof unto the joints, but leave the reſt impact in the cavity of ſome entraile, where cauſing obſtruction and putrefaction may preſently cauſe a feaver, and that intermitting, if it be ſmall, & obſtruct only the leſſer veins, & theſe of the habit of the body. Wherefore then it is not ſufficient that the Phyſitian employ himſelfe in the cure of the Gout, but it behoves him much more to attend the cure of the feaver, which if it bee continuall, it diſcredites the phyſitian, and endangers the patient; if it bee intermitting, it eaſily becomes continuall, unleſſe it be withſtood with fit remedies, that is, unleſſe you let blood, the belly being firſt gently purged, and nature be preſently freed by a ſtronger purge of the troubleſome burden of the humours. Now it is convenient the purge be ſomewhat ſtronger than ordinary, for if it ſhould bee too weake, it will ſtir up the humors, but not carry them away, & they thus agitated will fall into the pained and weak joints, and cauſe the Gout to encreaſe. By this it appeares how deceitfull that conjecture is, which relyes & is grounded on one ſigne, as often as we muſt pronounce judgement of morbificke cauſes. Wherefore to conclude wee muſt thinke that opinion moſt certaine concerning the matter of the diſeaſe, which is ſtrengthened with multiplicity of ſignes, as thoſe which are drawne from the colour of the part, the heate or coldneſſe manifeſt to the touch, thoſe things that helpe and hurt, the patients familiar and uſuall diet, temper, age, region, ſeaſon of the yeare, propriety of paine, the exacerbation or exceſs thereof, in what daies, & in what houres of the day, the length of theſe fits, the urine and other excrements comming from the patients body. But for that not a few are in that hereſie, that they thinke that we muſt neither purge nor let blood in the Gout, we muſt here convince that opinion. For ſeing that Phyſicke is the addition of that which wants, and the taking away of thoſe things that are ſuperfluous, and the Gout is a diſeaſe which hath its eſſence from the plenty of abounding humours, certainely without the evacuation of them by purging and bleeding, wee cannot hope to cure, either it, or the paine which accompanies it. *Metrius*, in his Treatiſe of the Gout writes, that it muſt be cured by purging, uſed not onely in the declination, but alſo in the height of the diſeaſe, which wee have found true by experience; and it is conſonant to this ſaying of *Hippocrates*; in paines wee muſt purge by the ſtoole. Beſides alſo, *Galen* profeſſeth that in great inflammations, feavers, and paines, he knew no greater nor ſurer remedy than to let blood, even to the fainting of the patient. If thoſe which are in this caſe ſhall not become better by purging and phlebotomy conveniently preſcribed, then it happens by meanes of drunkenneſſe, gluttony, and the like diſtemper. For hence abundance of crude humors are heaped up, which by their contumacy yeeld themſelves leſſe obedient to medicines. Therefore ſuch gouty perſons as are intemperate and given to gluttony and venery, may hope for no health by uſe of medicines.

Chap. XV.

Of locall medicines which may be uſed to a cold Gout.

It is not ſafe to uſe repercuſſives in the gout before purging.

LIttle doe topicke medicines availe, unleſſe the body of the gouty patient ſhall be purged from excrementitious humours; beſides alſo there is danger leſt by the uſe of repelling medicines, the virulency of the humours may be driven into the entrailes, which thing hath bin the cauſe of ſodaine death to many. Now in the firſt place we will ſpeake of locall medicines which are thought meet for a phlegmatick juice, becauſe this is more frequent, than that which is from

An aſtringent Cataplaſme.

A diſcuſſing fomentation.

One partly aſtringent and partly diſcuſſing.

a hot cauſe. At the beginning in every gout, the *ſciatica* excepted, wee muſt uſe aſtringent things which have a faculty to binde or ſtrengthen the joints, and to dry and waſte the excrementitious humour. As, ℞. *fol. ſabinæ* m. ß. *nucum cupreſſi* ℥iii. *aluminis roch.* ʒi. *gum. tragacanthæ* ℥iiii. *mucaginis pſilii & cydon. quantum ſufficit, fiat cataplaſma.* Or, ℞. *ſtercoris bubuli recentis* ℔. j. *mellis roſ.* ʒiiii. *olei roſ. & aceti an.* ℥ii. *bulliant ſimul parum, fiat cataplaſma.* Or elſe, ℞. *olei roſar. & myrtill. an.* ʒii. *pulveris myrrhæ & aloes an.* ʒi. *acaciæ* ℥iiß. *incorporentur cum aqua gallarum coctarum, & fiat unguentum.* Some boyle ſage, camomile and melilote flowers, wormewood and dane-wort, of each a handfull in a ſufficient quantity of vinegar, then they put the grieved part into this decoction being warme; & by frequent uſing this medicine, it hath beene found to repell and conſume the noxious humour, not onely cold, but alſo cholericke; and alſo to ſtrengthen the part. The freſh fæces of Olives layd to the part, aſſwage paine: dryed Oranges boiled in vinegar, beaten and applyed doe the ſame. Or, ℞. *medii corticis ulmi* ℔. ß. *caudæ equin. ſtæchad. conſolid. majoris, an.* m. ß. *aluminis roch. thuris an.* ʒiii. *farin. hordei* ʒv. *lixivii com. quantum ſufficit, fiat cataplaſma ad formam pultis ſatis liquidæ.* Commonly then when as the part ſwelleth up, the paine is leſſened, for that the expulſive faculty driveth the humour from the center into the circumference of the part, that is, from within outwards; for in like ſort, ſuch as have the tooth ach have leſſe paine when their cheekes begin to ſwell.

After repercuſſives, wee muſt come to thoſe which evacuate the conteyned humour by evacuating or reſolving it. For every defluxion of humours remaining in any part requires evacuation. Neither muſt we marvaile thereat, if the digeſted humour doth not vaniſh at the firſt time; for we muſt have regard to the cold phlegme which is thick and viſcide, as alſo of the part which is ligamentous, membranous and nervous, and conſequently more denſe than fleſhy parts. ℞. *rad. Bryon. ſigilli beat. Mariæ an.* ʒiv. *bulliant in lixivio, poſtea terantur, & colentur per ſetaceum, addendo farin. hordei & ſaburum an.* ℥i. *olei chamæm.* ʒiii. *fiat cataplaſma.* Or, ℞. *farin. hordei & lupin. an.* ʒiii. *ſulphuris vivi & ſalis com. an.* ℥i. *mellis com.* ℥v *pul. aloës & myrrhæ an.* ℥ß. *aq. vit.* ℥i. *cum lixivio fiat cataplaſma.* Or, ℞. *ſucci caulium rub. aceti boni, an.* ʒiiii. *farin. hordei* ℥iß. *pul. Hermodactyl.* ℥ß. *vitellos ovorum* nu. iii. *olei chamæm.* ℥iii. *croci* ℈ii. ſome burne the roots and ſtalkes of colworts, and mixe the aſhes with hogs greace and the powder of Orris, and ſo make a pultis. Or, ℞. *Lactis vaccini* ℔. ii. *micæ panis albi quantum ſufficit, bulliant ſimul, addendo pulveris ſubtilis florum chamæm. & meliloti an.* m. ß. *croci* ℈i. *vitellos ovorum* nu. iiii. *ol. roſar.* ℥iii. *butyri recentis* ʒi. *terebinth.* ℥ii. *fiat cataplaſma ad formam pultis ſatis liquidæ.* This Cataplaſme may be applyed with good ſucceſſe, not only to phlegmatick & cold, but alſo to any gout, at any time to mitigate the extremity of the pain in men of any temper, and it muſt bee changed twice or thrice a day. Alſo Treacle diſſolved in wine, and annoynted on the part, is ſayd to aſſwage this paine. You may for the ſame purpoſe make and apply emplaſters, unguents, cerats and liniments: This may bee the forme of an emplaſter. ℞. *gummi ammoniaci, bdelii, ſtyracis, an.* ʒii. *cum aceto & aqua vit. diſſolve, & adde farin. fænugr.* ʒß. *olei chamæm. & anethi, an.* ℥ii. *ceræ quantum ſufficit, fiat emplaſtrum molle.* Or, ℞. *rad. bryon. ſigill. beat. Mariæ, an.* ℥v. *bulliant in lixivio completè, & colentur per ſetaceum, addendo olei cham.* ʒiiii. *ſevi hircini* ℥iiii. *ceræ nov. quantum ſufficit, fiat emplaſtrum molle.* Or, ℞. *gum. ammon. opopanacis galbani, an* ʒii. *diſſolvantur in aceto, poſtea colentur, adde olei liliorum, terebinth. venet. an* ℥i. *picis navalis, & cer. nov. quantum ſufficit, fiat emplaſtrum molle.* Or elſe, ℞. *ſucci rad. enul. camp. & ebuli an.* ℥iii. *rad. alth.* ℔. ß. *coquantur & colentur per ſetaceum, addendo florum cham. melil. ſambuci, roriſmar. & hyperici an.* p. ii. *nucum cupreſi,* nu. iiii. *ol. cham. aneth. hyper. liliorum, de ſpica an.* ʒii. *pinguedinis anatis, gallin. anſeris an.* ʒß. *ranas virides vivas* nu. vi. *catellos duos nuper natos, bulliant omnia ſimul, in* ℔. ii. ß. *vini oderiferi, & unà aqua vit. ad conſumptionem ſuccorum & vini, & oßium catellorum diſſolutionem, & fortiter exprimantur; expreſſioni adde terebinth.* ʒiii. *cer. quantum ſufficit. fiat emplaſtrum molle.* Alſo, *Emp. de vigo. Oxicroceum, de mucilaginibus, de meliloto* and the like mixed together, and ſoftened with a

Why the gouty humour doth not preſently vaniſh upon the uſe of repercuſſives.

Greater diſcuſſers.

A Cataplaſme good for any gout at any time.

Diſcuſſing emplaſters.

little oyle or *axungia*, are of the like faculty, and good for the ſame purpoſe.

Ointments.

Diſcuſſing fomentations.

Remedies muſt be often changed in the gout.

Let this be the forme of an ointment. ℞. *anſerem pinguem, & imple catellis duobus, de quibus deme cutem, viſcera, caput & pedes*; *item accipe ranas* nu. x. *colubros detracta cute in fruſta diſſectos* nu. iv. *mithridat. & theriac. an.* ℥ß. *fol. ſalviæ, roriſmar. thymi, rutæ, an.* m. ß. *baccarum lauri, & juniperi conquaſſat. an.* ℥i. *pulveris nuc. moſchat. zinzib. caryophyl. & piper. an.* ʒi. *de eo quod ſtillabat fiat unguentum vel linimentum cum cera & terebinth. veneta, pauca aqua vitæ addita*; this marvelouſly aſſwageth the paine of the gout ariſing from a cold cauſe. Another, ℞. *Gummi pini, & lodani, an.* ℥iv *gummi elemi & picis naval. an.* ℥ß. *terebinth. venet. claræ* ʒvi. *chamæmel. & liliorum an.* ℥iv. *vini rub.* ℔. i. ß. *aq. vit. & ſalv. an,* ʒvi. *diſſolvantur omnia ſimul lento igne, baculo ſemper agitando, deinde adde pul. ireos, flor. baccarum lauri, & hermodactyl. and* ℥iiß. *maſtiches, myrrhæ & olibani an.* ℥ii. *farinæ fabar.* ℥iv. *incorporentur omnia ſimul, fiat unguentum molle.* Or elſe, ℞. *mucag. ſeminis fænugr. in aceto extract. quantum volueris, cui miſce mellis quantum ſufficit*; let them be boyled together untill they acquire the conſiſtence of an oyntment. Theſe things ſhall be changed, as often as need ſhall ſeeme to require. Alſo anodine and diſcuſſing fomentations are good to reſolve; as this, ℞. *fol. rutæ, ſalv. roriſmar. an.* m. i. *bulliant cum aceto & vino*; and ſo make a decoction for a fomentation, which you may uſe not only in a cold gout, but alſo in a hot, becauſe it reſolveth and ſtrengtheneth the part by aſtriction, and freeth it from the defluxion: you muſt have a care that the medicines which are uſed to paines of the gout be changed now and then. For in this kinde of diſeaſe that remedy which did good a little before, and now availeth, will in a ſhort time become hurtfull.

A great diſcuſſer.

An anodine.

A veſicatory againſt the contumacy of the conjunct matter.

But if the contumacy and exceſſe of the pain be ſo great, that it will not yeeld to the deſcribed medicines, then it is fit, becauſe the diſeaſe is extreme, to uſe (according to *Hypocrates* counſell) extreme remedies, ſuch as are thoſe which follow. ℞. *axungiæ gallinæ, olei laurini maſtic. & euphorb. an.* ℥i. *pulver. euphorb. & pyreth. an.* ʒi. *fiat litus*; herewith let the part bee rubbed every day, for it is a very effectuall medicine. For *euphorbium* and pellitory by their heat attenuate and reſolve, the capons greaſe and oile of bayes, relaxe, the oyle of maſtich ſtrengtheneth the part and hindereth a new defluxion. Alſo there is made a very anodine ointment of oyle of foxes, wherein earth-wormes, the roots of elecampane and bryonie have beene boiled, with a little turpentine and waxe; this ſoftens, attenuates and reſolves the cold humour impact in the joints. Or elſe, ℞. *ſeminis ſinapi pulveriſati, & aceto acerrimo diſſoluti,* ℥iii. *mellis anacardini* ℥ii. *aqua vitæ* ℥i. *ſalis com.* ʒii. Let them bee all mixed together, and applyed to the pained part. Or, ℞. *picis nigræ,* ℥iii. *terebinth. venetæ* ℥ii. *ſulphuris vivi ſubtiliter pulveriſati* ℥iii. *olei quant. ſufficit, liqueſiant ſimul, fiat emplaſtrum*; Let it bee ſpread upon leather, and laid upon the part for two or three dayes ſpace, if the patient perceive any eaſe thereby; if otherwiſe, let it be changed as we ſaid before. Some for the ſame purpoſe apply nettles thereto, and preſently after waſh the part in ſea or ſalt water. Others foment the part with vineger wherein pidgeons dung hath beene boiled. A veſicatory made of very ſower leaven, *cantharides*, and a little *aqua vitæ*, is very powerfull to evacuate the conjunct matter. For thus the maligne and virulent *ſerum*, or whayiſh humour is let out, whence followes ſome eaſe of the pain. Now there are ſome gouty paines, which cannot bee leſſened or aſſwaged unleſſe by remedies more powerfull than the diſtemper, therefore veſicatories ought not to be rejected, ſeeing that the Ancients in this affect have alſo made uſe of actuall cauteries, as we ſhall ſhew hereafter. *Chriſtopher Andreas* in his booke termed *Oëcoitarie* [that is, Domeſtick phyſicke] much commends Oxe dung wrapped in cabbage or vine leaves, and roaſted in the embers, and ſo applyed hot to the grieved part.

CHAP. XVI.

Of locall medicines to be applied to a hot or ſanguine Gout.

HEre muſt wee in the beginning make uſe of repercuſſives, ſuch as are cold and dry, that they may contend with the morbificke matter by both their qualities; alſo let them bee aſtrictive, ſo to adde ſtrength to the part. But I would have you alwaies to underſtand that you muſt firſt premiſe generall medicines. ℞. *albuminum ovorum* nu.iv. *ſucci lactucæ & ſolani an.* ℥i. *aq.roſar.* ℥ii. *incorporentur ſimul, & fiat linimentum ſæpius renovandum.* Others take the meale of barly, lentils, *acatia*, oile of roſes, myrtles, and with a little vineger they make a cataplaſme; Or, ℞. *ſumach, myrtillorum, boli arm. an.* ʒß. *acatiæ, corticum granat. balust.an.* ℥i. *aq. plantag. & roſar. an.* ℥iii. *ol.roſati* ℥iß. *aceti* ℥i. *farinæ hordei & lentium quantum ſatis erit, fiat cataplaſma.* This is very excellent and effectuall to ſtay or hinder phlegmonous and eryſipelatous tumours. Alſo you may make a Cataplaſme *ex mucagine Cydoniorum in aqua roſarum extracta, caſſiæ fiſtula, oleo roſato, & aceto.* Or, ℞. *pampinorum vitis viridum,* m. ii. *terantur & bulliant in oxycrato ex aqua fabrorum, cui adde ſumach. conquaſſati* ℥i. *olei roſat.* ℥ii. *farinæ hordei quantum ſufficit, fiat cataplaſma.* Or elſe, ℞. *ſucci ſempervivi, hyoſcyami, & portulacæ an.* ℥iv. *corticum mali granati* ℥iß. *farinæ hordei* ℥v. *vini auſteri quantum ſufficit, fiat cataplaſma*; this is much commended, for it hath entring thereinto wine and the pomgranate pill, which both are very great aſtrictives; and the juices are exceeding cooling, the meale alſo hinders and thickens the ſanguine humours that are ready to flow downe, and make the medicine of a good conſiſtence. Another. ℞. *fol. hyoſcyami & acetoſæ an.*m.i. *involvantur papyro, & ſub cineribus coquantur, mox cum unguento populeon. aut roſat.* ℥ii. *incorporentur*; and then lay this Cataplaſme thus made warme unto the part. Another, ℞. *florum hyoſcyami* ℔. ii. *ponantur in phiala vitreata, & reconde in fimo equino donec putruerint, accipe ex putredine* ℥ii. *in quibus diſſolve olei de junipero* ʒß. *fiat linimentum ad uſum.* Others beat the pulpe of a Gourd or Citrull in a mortar, and ſo apply it. Another, ℞. *mucag. ſem. pſilii, & cyton. extract. in aqua roſar. & ſolani an.* ℥iiii. *olei roſati omphacini,* ℥iii. *vini granatorum* ℥i. *vitellos ovorum cum albumine* nu.iii. *camphoræ* ʒi. *incorporentur ſimul, fiat linimentum.* Or elſe, ℞. *ol. roſat. omphacini* ℥iv. *album. ovorum cum vitellis* nu. vi. *ſucci plantag. & ſolani, an* ℥i. *farinæ hordei* ℥iii. *incorporentur ſimul, fiat cataplaſma.* Or, ℞. *farinæ fabarum & hordei an.* ℥iii. *olei roſati,* ℥ii. *oxycrati quantum ſufficit, coquantur ſimul, fiat cataplaſma.* Another, ℞. *mucag. ſem. pſilii* ℥iiii. *ol. roſati* ℥ii. *aceti* ℥i. *vitellos ovorum,* nu. iii. *croci* ℈i. *miſce.* *Pliny* reporteth that *Sextus Pomponius* the Governour of the hither Spaine, as hee overlooked the winowing of his corne, was taken by the paine of the gout in his feet, wherefore hee covered himſelfe with the Wheat above his knees, and ſo was eaſed, his feet being wonderfully dryed; and he afterwards uſed this kind of remedy. It is note worthy, which often happeneth, that the paine cannot bee altogether eaſed by ſuch like remedies, by reaſon of the abundance of bloud impact in the part; wherefore it muſt bee evacuated: which I have done in many with good ſucceſſe, opening the veine which was moſt ſwelled and nigh to the affected part; for the paine was preſently aſſwaged. Neither muſt wee too long make uſe of repercuſſives; leſt the matter become ſo hardened, that it can ſcarce bee afterwards reſolved, as when it ſhall bee concrete into knots and plaiſterlike ſtones: reſolving medicines are to bee mixed with repercuſſives conveniently applied, ſo to diſcuſſe the humour remaining as yet in the part, whereof ſhall bee ſpoken in the following Chapter.

What repercuſſives are here required.

An excellent aſtringent cataplaſme.

Lib.22.cap.25.

Phlebotomy to evacuate the conjunct matter, and aſſwage paine.

CHAP. XVII.

Of locall medicines for a cholericke gout.

What repercuſſives are here required.

A cerate with *opium*.

The water of Snailes.

THe repercuſſives that muſt firſt be uſed in this kinde of gout ought to bee cold and moiſte, that ſo they may reſiſt both the qualities of choler: ſuch are the leaves of night-ſhade, purſlaine, houſe-leeke, henbane, ſorrell, plantaine, poppy, cold water, and the like, whereof may bee made divers compoſitions. As, ℞. *ſucci hyoſciami, ſempervivi. lactuc. an.* ℥ii. *farin. hordei* ℥i. *olei roſati,* ℥ii. *agitando ſimul fiat medicamentum*; let it bee applyed and often changed, for ſo at length it will aſſwage the inflammation. Some thinke the braine of a hogge mixed with white ſtarch, or barly meale and oile of roſes, an excellent medicine. The leaves of mallowes boyled in water, and beaten with a peſtell, and applyed, aſſwage pain. ℞. *mucag. ſem. pſilii extract. in aq. ſolani, vel roſarum* ℥ii. *farin. hordei* ℥i. *aceti q. ſ. fiat linimentum.* Or elſe, ℞. *unguent. roſat. meſuæ, & populei. an.* ℥iii. *ſucci melonum* ℥ii. *alb. ovorum,* nu. iii. *miſceantur ſimul pro litu.* Alſo a ſpunge dipped in oxycrate, and preſſed out again and applied thereto doth the ſame. Or elſe, ℞. *fol. caulium rub.* m. ii. *coquantur in oxycrato & terantur: adde ovorum vitellos tres, olei roſati* ℥iii. *farinæ hordei quantum ſufficit, fingatur cataplaſma*: Alſo you may take the crude juice of cole-worts, dane-weede, and roſes beaten and preſſed out, and of theſe incorporated with oyle of roſes and barly meale make a cataplaſme. In winter time, when as theſe things cannot bee had greene, you may uſe *unguentum infrigedans Galeni & populeon.* Or elſe, ℞. *ceræ albæ* ℥i. *croci* ℈i. *opii* ℈iiii. *olei roſati quantum ſufficit, marcerentur opium & crocus in aceto, deinde terantur & incorporentur cum cera & oleo, fiat ceratum*; ſpread it upon a cloth, & lay it upon the part, and all about it, and let it bee often renewed. Some cut Frogges open and apply them to the grieved part. It is confirmed by ſundry mens experience, that the paine of the *ſciatica*, when it would yeeld to no other remedy, to have beene aſſwaged by annoynting the part affected with the mucous water or gelly of Snailes, being uſed for the ſpace of ſeven or eight dayes; the truth whereof was aſſured mee by the worthy Gentleman the Lord of *Longemeau*, a man of great honeſty and credit, who himſelfe was troubled for ſixe moneths ſpace with the *ſciatica*. This water is thus made, Take fifty or ſixty red Snailes, put them in a copper pot or kettle, and ſprinkle them over with common ſalt, and keep them ſo for the ſpace of a day; then preſſe them in a courſe or haire cloth; in the expreſſed liquor dip linnen ragges, and apply them ſo dipped to the part affected, and renew them often. But if there bee great inflammation, the Snailes ſhall bee boyled in Vineger and Roſe-water. They ſay that Citrons or Oranges boyled in Vineger, and beaten in a mortar, and incorporated with a little barly or beane flower, are good againſt theſe paines. Or elſe, ℞. *pomorum coctorum in lacte lib.* i. *butyri* ℥i. *vitellos ovorum,* nu. ii. *aceti* ℥i. *fiat cataplaſma.* There are ſome who take cheeſe crud newly made, and mixe it in a mortar with oyle of Roſes and barly meale, and ſo apply it; it repreſſeth the inflammation and aſſwageth paine. Others mixe *Caſsia* newly extracted forth of the Cane, with the juice of Gourds or Melons. Others apply to the part the leaves of Cole-worts, and Dane-weede or ſmallage, or all three mixed together and beaten with a little Vineger. Others macerate or ſteepe an ounce of linſeed in Wurt, and make the mucilage extracted therefrom into a Cataplaſme with ſome oyle of Roſes and barly meale. Some put oyle of poppyes to the pulpe of Citrulls or Gourds being beaten, and ſo incorporate them together, and apply it.

A hiſtorie.

A particular ſtove.

This following medicine hath its credit from a certain Gaſcoine of Baſas that was throughly cured therwith, when as he had bin vexed long & much with gouty pains, above the common cuſtome of ſuch as are troubled with that diſeaſe. Thus it is; Take a great ridge tile thick & ſtrong, and heat it red hot in the fire, then put it into ſuch another tile of the ſame bigneſſe, but cold, leſt it ſhould burne the bed-clothes, then forthwith fill the hot one with ſo many Dane-wurt leaves, that the patient may ſafely lay the affected part therein, without any danger of burning it. Then let the patient

ent endure the heate that comes therefrom, and by ſweate receive the fruit thereof, for the ſpace of an houre, ſubſtituting freſh Dane-wurt leaves, if the former become too dry, as alſo another hot tile, if the former ſhall grow too cold before the houre bee ended. This being done, let the part bee dryed with warme and dry linnen clothes. Uſe this particular ſtove for the ſpace of fifteene dayes, and that in the morning faſting; afterwards annoynt the part with this following oyntment. ℞. *ſucci ebuli* ℔. i. ß. *olei com.* ℔ i. *miſceantur ſimul*, and let them be put into a ſtrait mouthed glaſſe, and well luted up; then let it boyle in *balneo Mariæ*, being firſt mixed with ſome wine, untill the halfe thereof bee conſumed, for the ſpace of tenne or twelve houres, then let it coole, and ſo keepe it for uſe, adding thereto in the time of annoynting, ſome few drops of *aqua vitæ*. It may bee annoynted twice or thrice in a day, long after meate. Moreover the roots and leaves of Dane-wurt boyled in water, beaten and applyed aſſwage paine; the oyle thereof chimically extracted performes the ſame.

An ointment of the juice of Dane-wurt.

But if the contumacious paine cannot bee mitigated by the deſcribed remedies, and becomming intolerably hot and raging, make the patient almoſt to ſwoune, then muſt wee fly to narcoticks. For although the temper of the part may bee weakened by theſe, the native heate diminiſhed or rather exſtinguiſhed; yet this is a far leſſe inconvenience than to let the whole body bee waſted by paine; Theſe things have a powerfull refrigerating and drying faculty, taking away the ſenſe of the paine, and furthermore, incraſſate, thin, acride and biting humours, ſuch as cholericke humours are. Wherefore if the matter which cauſeth the paine be thick, wee muſt abſtaine from narcoticks, or certainely uſe them with great caution. ℞. *micæ panis ſecalini parum cocti in lacte* ʒii. *vitellos ovorum*, nu. ii. *opii* ʒi. *ſuccorum ſolani, hyoſciami, mandragoræ, portulacæ, ſempervivi, an.* ℥i. Let them bee mixed together and applyed, and often changed. Or elſe, ℞. *fol. hyoſciami cicutæ, acetoſ. an.* m. i. *bulliant in oxycrato & contundantur, cumque vitellis ovorum crudorum* nu. ii. *& olei roſat.* ʒii. *farina hordei quod ſit ſatis, incorporentur, fiat cataplaſma*; with the uſe thereof I am accuſtomed to aſſwage great pains. Or elſe, ℞. *Opii* ʒiii. *camphor.* ʒß. *olei nenuph.* ℥i. *lactis* ℥ii. *unguent. roſ. Galeni* ʒiv. *incorporentur ſimul in mortario, applicentur*. Moreover, cold water applyed & dropped upon the part drop by drop, is narcotick and ſtupefactive, as *Hippocrates* affirmeth, *Aphor. 29. Sect. 5.* for a moderate numneſſe mitigateth paine; there is alſo another reaſon why it may bee profitably uſed in all paines of the Gout, for that by repelling the humours, it hindereth their defluxion into the part. Mandrage apples boyled in milke, and beaten, doe the ſame thing; alſo the leaves of henbane, hemlock, lettuce, purſlaine, being ſo boiled, doe the ſame. If any deſire to uſe theſe more cold, hee muſt apply them crude, and not boyled.

When to uſe narcoticks.

A cataplaſme with opium.

But the exceſſe of paine being mitigated, wee muſt deſiſt from the uſe of ſuch narcotickes, and they muſt rather bee ſtrengthened with hot and digerating things; otherwiſe there will bee danger leſt it bee too much weakened, the temper thereof being deſtroyed, and ſo afterwards it may bee ſubject to every kinde of defluxion. Wherefore it ſhall bee ſtrengthened with the formerly deſcribed diſcuſſing fomentations, and theſe enſuing remedies. As, ℞. *gum. ammoniaci & bdelii an.* ℥i. *diſſolvantur in aceto, & paſſentur per ſetaceum, addendo ſtyracis liquid. & farin. fænug. an.* ℥ß. *pul. ireos* ℥iiii. *olei chamæm.* ʒii. *pulveris pyrethri* ʒii. *cum cera fiat emplaſtrum molle.* Or elſe, ℞. *rad. enulæ, ebuli altheæ an* ℔. ß. *ſem. lini, fænugr. an.* ʒii. *ficuum ping.* nu. xx. *coquantur complete & trajiciantur per ſetaceum, addendo pul. euphorb.* ʒii. *olei chamæm. aneth. & rutacei, an.* ℥iii. *medullæ cervi* ℥iv. *fiat cataplaſma.* Yet you muſt uſe moderation in diſcuſſing, leſt the ſubtler part of the impact humour being diſcuſſed, the groſſer part may turne into a ſtony conſiſtence, which alſo is to bee feared in uſing repercuſſives.

How to amend the harm done by narcoticks.

Dicuſſers.

A meane to be uſed in diſcuſſing.

I alſo omitted, that, according to the opinion of the Ancients, bathes of freſh water, wherein cooling herbes have been boiled, uſed three houres after meat, conduce much to the aſſwaging of pain; for ſo uſed, they are more convenient in cholerick natures, and ſpare bodies, for that they humect the more, and quickly digeſt the thin and cholerick, and conſequently acride vapours, the pores being open-

Bathes aſſwage the paine of the gout.

ed, and the humours diſſipated by the gentle warmeneſſe of the bath. After the bath, the body muſt be annoynted with *hydræleum*, or oyle and water tempered together, leſt the native heate exhale, and the body become more weake. Meates of more groſſe juice are more convenient, as beefe, ſheeps-feet, and the like, if ſo be that the patient can digeſt them, for theſe inſpiſſate the cholerick bloud, and make it more unfit for defluxion.

How meats of groſſe juice are profitable.

Chap. XVIII.

What remedies muſt be uſed in paines of the joynts proceeding of a diſtemper onely, without matter.

A hiſtorie.

PAines alſo happen in the joynts by diſtemper without any matter, which though rare, yet becauſe I happened once to feele them, I have thought good to ſhew what remedies I uſed againſt them. I once earneſtly buſied in ſtudy, and therefore not ſenſible of ſuch externall injuries as might befall mee; a little winde comming ſecretly in by the crannies of my ſtudie, fell upon my left Hippe; at length wearied with ſtudy, as ſoone as I roſe up to goe my way, I could not ſtand upon my feete, I felt ſuch bitter paine without any ſwelling or humour which might bee diſcerned. Therefore I was forced to goe to bed, and calling to minde, that cold, which was abſolutely hurtfull to the nerves, had bred mee that paine, I attempted to drive it away by the frequent application of very hot clothes; which, though they ſcorched and bliſtered the ſound parts adjoyning thereto, yet did they ſcarce make any impreſſion upon the part where the paine was ſettled, the diſtemper was ſo great, and ſo firmely fixed therein. And I layed thereto bagges filled with fryed oates and millet, and dipped in hot red wine; as alſo oxe bladders halfe filled with a decoction of hot herbs. And laſtly, a woodden diſh almoſt filled with hot aſhes, covered over with ſage, roſmarie, and rue lightly bruiſed, and ſo covered with a cloth, which, ſprinkled over with *aqua vitæ*, ſent forth a vapour which aſſwaged the paine. Alſo browne bread newly drawne out of the oven, and ſprinkled over with Roſe-water, and applyed, did very much good. And that I might more fully expell this hurtfull cold, I put ſtone bottles filled with hot water, to the ſoales of my feete, that the braine might bee heated by the ſtreightneſſe and continuity of the nerves. At length, by the helpe of theſe remedies, I was very well freed from this contumacious diſtemper, when it had held mee for the ſpace of foure and twentie houres.

Hip.ap.10.ſect.5.

Divers remedies for paine ariſing from a cold diſtemper without matter.

A fuliginous vapour ſometimes the cauſe of the gout.

There is another kind of gouty pain ſometimes cauſed by a certain excrementitious matter, but ſo thin and ſubtle that it cannot bee diſcerned by the eyes. It is a certaine fuliginous or ſootie vapour, like to that which paſſeth from burning candles or lampes, which adhers and concreets to any thing that is oppoſed thereto; which being infected by the mixture of a virulent ſerous humour whitherſoever it runneth, cauſeth extreme paine, ſomewhiles in theſe, and otherwhiles in other joynts, unleſſe you make a way therefore, when as it ſeeketh paſſage forth, which muſt be done by hornes, cupping-glaſſes, veſicatories, cauteries, or other the like art.

CHAP. XIX.

What is to be done after the fit of the gout is over.

IT is convenient when the paine is aſſwaged, that you ſtrengthen the joints. Now, to ſtrengthen them is not onely to binde and dry, but wholly to amend the weakeneſſe left in the part by the diſeaſe, that is, to diſcuſſe the humour, if any ſuperfluity thereof remaine; but to humect the part, if the moyſture bee exhauſted and dryed up. But ſuch as are troubled with the gout, after they are freed from their paine, have notwithſtanding ſuch impotency of their joynts that they cannot goe of a long time after; for that the nerves and tendons which are in great number in the feete, being moyſtened with much phlegme, are ſo relaxed, that they can no more ſuſtaine or beare themſelves upon their feete, than paper when it is wet can bee made to ſtand. Wherefore, that they may recover the uſe of their feete, the impacted humour muſt by all meanes be diſcuſſed, and ſpent with fomentations, cataplaſmes, drying and aſtringent emplaſters. You may uſe the formerly deſcribed fomentation, encreaſing the quantity of alume and ſalt, and adding thereto a like quantity of *ſulphur vivum:* then the following emplaſter ſhall bee applyed thereto. ℞. *maſ. emplaſt. contra rupturam* ℥iiii. *tereb.* ℥ii. *pulv. roſ. rub. nucum cupreſſ. gallarum, gran. myrtil. & fol. ejuſdem, thuris, maſtich. & caryophyl. an.* ʒi. *malaxentur omnia ſimul, manibus inunctis oleo myrtino & maſtichino, fiat emplaſtrum.* Let it bee ſpread upon leather to a juſt bigneſſe, and applyed to the top and ſole of the foote. Draw over the plaſter, and the whole legge a ſtocking made of a tanned dogges skinne; this emplaſter ſtrengtheneth the nerves, draweth forth the humour impact therein, and intercepts the defluxion. But the dogge-skinne ſtocking preſerveth the native heate of the part, and for that it bindeth, hindreth the defluxion into the feete.

How to ſtrengthen the joints.

Remedies for the weakneſſe left in the joints after the paine is gone.

The benefit of a dog-skinne ſtocking.

CHAP. XX.

Of the Tophi, *or knots which grow at the joynts of ſuch as are troubled with the Gout.*

SOme that are troubled with the gout, have knotty bunches growing in their joynts, which by the Ancients were called *Tophi.* Theſe are generated by the congeſtion of groſſe, viſcide and crude phlegme, with a little admixtion of an acride and cholericke humour. Theſe matters remaine ſettled in the part, for that it being too weake cannot digeſt and depreſſe them; wherefore being there impact, they eaſily concrete into a certaine plaſter-like or chalke-like ſubſtance, whileſt by the adventitious and burning heate cauſed by paine, and the gouty malignity, their more ſubtle part is diſperſed, but the groſſer ſubſides. Yet ſometimes the unfit application of repercuſſive or diſcuſſive medicines is a cauſe of the generation of theſe *Tophi.* For by the former, the impact matter is incraſſated and gathered together; but by the latter, the ſubtle part being diſcuſſed, the remnant that ſubſides concretes into *Tophi.* Thoſe medicines which are made to mollifie, ought to have a moderately heating, and humecting faculty, that they may diffuſe, and as it were diſſolve the impact matter; ſuch is warme water, the decoction of emollient herbes, the decoction of Calves or Sheepes entrailes, heads and feete: after theſe or the like fomentations, you ſhall uſe the following medicine. ℞. *axungiæ, human. anſeris & gallinæ, medul. cervin. an.* ℥ii. *tereb. ven.* ℥i. *aq. vit. parum, ceræ quantum ſuficit, fiat unguentum molle.* Then this which followeth will bee good. ℞. *rad. alth. liliorum, bryon. lapath. acuti, an.* ℥iiii. *coquantur complete & trajiciantur per ſetaceum; adde gum. ammon. bdel. galb. opopanacis in aceto diſſolutorum* ℥i. *medul. cervin.* ℥i. ß.

Whence the *tophi* are generated.

The unfit application of diſcuſſive & repercuſſive medicines cauſe the *tophi.*

Mollifying medicines.

ʒ iß. *incorporentur ſimul, & applicentur.* Or elſe, ℞. *olei liliorum, amygd. dul. medulla cruris cer. an.* ℥ ii ß. *mucag. ſem. lini, alth. fænugr. an.* ʒ i. *ceræ quantum ſufficit; fiat ceratum.* Or elſe ℞. *empl. de vigo cum mercurio, & cerat. de æſipo humida deſcript. Philagrii, an.* ʒ. ii. *malaxentur ſimul cum oleo lilior. fiat maſſa.* Or elſe, ℞. *gum. ammon. opopan. galb. bdel. diſſolutorum in aceto, an.* ʒ ii. *panno lineo colatis, adde pulv. ſulph. nitr. ſinapi, pyrethri, an.* ʒ ß. *ſtyracis, liq. & axung. hum. an.* ʒ i. *reſ. pini, tereb. ven. an.* ℥ ß. *ceræ quantum ſufficit, fiat ceratum molle.* This which followes is thought moſt effectuall in the opinion of *Galen* and *Avicen.* ℞. *pedes porcel. bene ſalſos, nu.* iiii. *veterem pernam, cum illis coque: addendo ſub finem, radicis bryoniæ, lapath. acut. an.* ʒ iii. *axungiæ tauri, & medul. cervin. an.* ℥ i. *cum caſeo putrefacto fiat empl. molle ad uſum.* This which followes is alſo moſt effectuall. ℞. *caſei acris & putrefacti,* ʒ iiii. *pul. ſulph. vivi euphorb. & pyreth. an.* ʒ iii. *decoctionis veteris pernæ & porcellorum quod ſufficit ad incorporandum, ducantur in mortario, & fiat empl. ad uſum.* Or elſe, ℞. *ſpumæ nitri,* ℥ vi. *tereb.* ʒ ii. *olei veteris,* ʒ viii. *lixivii, quo lanæ pileorum lavantur, & ceræ quantum ſufficit, fiat ceratum ſatis molle.* After the uſe of emollients, a fumigation ſhall be made in this manner. Heat a cogle-ſtone, milſtone or bricke, red hot in the fire, take it forth, and caſt upon it a ſufficient quantity of very ſharp vinegar, & *aqua vitæ*, the riſing vapour ſhall be diligently received by the affected member, for this hath a faculty to attenuate and cut groſſe, viſcide, and plaſter-like matter, yea alſo, and to break the skin; yet that is broken oft time of its own accord, without the help of either medicine or inſtrument. To conclude, theſe medicins which are good to mollifie ſcirrhous tumors, the ſame are alſo good to ſoften the gouty knots and *tophi.* But wee muſt note that theſe knotty bunches are ſomtimes ſuppurated, not truly by the impact & plaſterlike matter, but by a new defluxion comming on a ſodain, & then it is neceſſary to make way for the conteined matter, which being done, firſt there commeth forth a humor like milk, then a plaſter-like matter, then it leaves behinde it an ulcer to be cured by applying thereto *Empl. gratia dei*, and others as the Surgeon ſhall think fit.

Lib. 10. ſimp. c. 7 ſec. 22. lib. 3. tract. 2. cap. 21.

An effectuall fumigation.

CHAP. XXI.

Of flatulencies conteined in the joints, and counterfeiting true Gouts, and of the remedies to be uſed thereto.

OFT-times there is ſmall quantity of humour, which moves the paine of the gout; but much flatulencie mixed therwith, eſpecially in great joints, as in the huckle or hippe-bone, and the knees; they ſometimes cauſe ſo great diſtention, that they drive the heads of the bones forth of their places. You may partly underſtand it is ſo, if a tenſive paine afflict the patient with any ſenſe of heavineſſe; if when you preſſe the tumour with your fingers, the place retaine no marke or impreſſion thereof, as happens in an *œdema*, but on the contrary, a flatulent ſpirit lifts it up as it were by renitency, as if one ſhould thruſt a pair of bellows which are filld with wind, hence the part cannot performe its duty, for that the ſpaces of the joints are poſſeſſed with aboundance of flatulencies, ſo that the liberty of motion is intercepted, and the member is kept as it were bound up. Many no very skillfull Surgeons putting their fingers to theſe kind of tumours, ſo that lifting up the one they preſſe down the other, when as they perceive the flatulency, as it were, riſing betweene their fingers, ſuppoſing it to bee the motion of *pus*, or matter already generated and flowing up and downe, as is uſuall in impoſtumes, they have opened it by inciſion; but when as nothing flowed forth it appeared how much they were deceived, yet in the interim, by this their raſhneſſe they have cauſed many dangerous ſymptomes, as encreaſe of pain, defluxion of humours, by force whereof the bones have beene diſlocated, and brought to the patient an uncurable lameneſſe. But theſe flatulent gouts are ſeldome without ſome phlegmatick matter, which is neither too crude, nor viſcide. Such like flatulencies are not eaſily diſcuſſed, nor at the firſt endeavour, by reaſon of a cold diſtemper which they bring to the part, and the denſity of the membranes and ligaments by which the ar-

ticulation

In what joints flatulencies are chiefly generated.

Signes of flatulencies.

How flatulencies may make you beleeve there is *pus* or matter.

Why hard to cure.

ticulation is knit and faſtened, ſo that ſcarce any part of that which is there ſhut up can breath forth of ſuch ſtrait paſſages. Therefore the cure muſt be undertaken with reſolving, diſcuſſing, and drying fomentations; as for example, with a decoction of fennell, aniſeeds, rue, chamomill, melilote, ſage, roſemary, *origanum*, calamints, horehound, and the like, boyled in wine with a little Lye, roſe vinegar, and common ſalt. This following ointment ſhall bee uſed after the fomentation. ℞. *olei chamæm. aneth. rut. lauri, an.* ℥ ii. *cum cera alba, fiat linimentum addendo aq. vitæ parum.* After you have anointed it, apply thereto this following cataplaſme. ℞. *flor. cham. melil. aneth. roſ. rub. pulv. an.* m i. *fol. malv. & abſinth. an.* m ß. *furfur,* m i. *bulliant omnia ſimul cum lixivio, & vino rubro, deinde piſtentur cum medulla panis, & farina fabarum, quantum ſufficit, fiat cataplaſma, addendo ol. roſar. & myrtin. an.* ℥ ii. Some highly approve of this following medicine for the waſting of flatulencies. ℞. *axun. ſuil.* ʒ iv. *calcis vivæ,* ℥ i ß. *terantur diligenter in mortario, & incorporata applicentur.* Or elſe, ℞. *ſtercor. caprar. cocti cum vino & aceto, an.* ℔. ß. *tereb. venet. & mell. com. an.* ℥ ii. *aq. vitæ,* ℥ ß. *pul. rad. ireos florent. & ſabin. an.* ℥ iii. *olei rut. & aneth. an.* ℥ i. *farin. fabarum quantum ſufficit.* Make a cataplaſme to the forme of a pultis. Alſo ſtoupes dipped in oxycrate, and wrung out, ſhall be applyed: in this oxycrate ſhall be boyled wormewood, *origanum*, chamomill, melilote, rue, common ſalt, adding thereto ſome *aqua vitæ*. Then the part ſhall be bound up as ſtrait as the patient can endure it; in concluſion, that the native ſtrength may by little and little bee reſtored to the part, it ſhall be fomented with Lye made of the aſhes of Oake-wood and the cuttings of vines, wherein ſhall be boyled, ſalt, *ſulphur*, choiſe alome, and wetting linnen cloaths, or ſtoups therein, and applying them, it ſhall be ſtraitly ſwathed up. Yet if great pain ſhall more cruelly vexe the part, then neglecting for a time the proper cure of the diſeaſe, you ſhall withſtand the ſymptome by rubbing the part, and anointing it with ſome diſcuſſing oile, laying thereon ſome moiſt wooll & other anodyne things.

Chap. XXII.

Of the Iſchias, *Hip-gout, or* Sciatica.

For that the hip-gout in the greatneſſe of the cauſes, bitterneſſe of pain, and vehemency of other ſymptomes, eaſily exceeds the other kindes of Gout, therefore I have thought good to treate thereof in particular. The pain of the *Sciatica* is therefore the moſt bitter, and the ſymptomes moſt violent, for that the dearticulation of the huckle bone, with the head of the Thigh-bone, is more deepe than the reſt; becauſe alſo the phlegmaticke humour which cauſeth it, is commonly more plenteous, cold, groſſe, and viſcid, that flowes down into this joint, and laſtly becauſe the *Sciatica* commonly ſucceeds ſome other chronicall diſeaſe, by reaſon of the tranſlation and falling down thither of the matter, become maligne and corrupt by the long continuance of the former diſeaſe.

Why it hath the moſt grievous ſymptomes.

But the paine not onely troubles the hippe, but entering deepe, is extended to the muſcles of the buttockes, the groines, knees, and very ends of the toes, yea often times it vexeth the patient with a ſenſe of paine in the very *vertebra* of the loines, ſo that it makes the patients, and alſo oft times the very Phyſitians and Surgeons to thinke it the wind or ſtone Collicke. The cauſe of ſuch wandering and diſperſed paine is to bee referred to the manifold diſtribution of the nerves which come to that joint from the loines and holy-bone, for they are ſent into the muſcles of the buttockes, and ſo diſperſed over the whole legge to the very ends of the toes, as it is ſhewed in our Anatomy. Therefore the paine is largely extended, that is, to what part ſoever a nerve runs which comes from the affected Hippe. Often times there is no ſwelling, no redneſſe, nor diſtemper manifeſt to the eye, by reaſon that the veines are very few which riſe into the ſurface and skinne of this part, and the humour lyes, as it were, ſunke in; which is the cauſe that divers times the excrementitious humours mixed with flatulencie, runne ſo violently into the cavity of this joint, that relaxing the ligaments

The cauſe of the large ſpreading of the paine.

The thigh-bone often diſlocated by the *Sciatica*.

gaments, as well proper as common, the head of the thigh-bone is eaſily driven out from hence, ſo that it may never be reſtored again, if it remain ſo for any ſpace of time; for that in this time the humor falling down into this cavity, by delay concretes as it were into a ſtony body, and the head of the Thigh-bone weares it ſelfe another cavity in the neighbouring bone, but the lips of the true cavity, which are griſtly, become more ſtreit and depreſt, and laſtly all the ligamentous bodies moiſtened with this excrementitious humour become more looſe and weake, whence ſucceed many and moſt grievous ſymptoms, as lameneſſe, & the decay not only of the thigh & leg, but at length of the whole body, and laſtly a ſlow and hectick feaver, which in continuance of time will conſume the patient for the cauſes formerly mentioned. Therfore let Phyſitians and Surgeons have a care that they reſiſt it at the firſt, and with ſuch powerfull remedies as are mentioned in the following chapter, hinder the ſpringing up and growth of the formerly mentioned ſymptomes.

CHAP. XXIII.

The cure of the Sciatica.

Why we muſt open a veine in the *Sciatica*.

When the *vena iſchiadica* and *ſaphia* muſt be opened in the *ſciatica*.

THough the *Sciatica* bee commonly occaſioned by tough phlegme, yet if the patient be ſtrong and abound with blood, and all things elſe conſent, it ſhall bee good to draw blood by opening a veine; for phlebotomy equally evacuates all humors; therefore the falling downe of the humors into the part affected, is thereby hindered, or retarded. Verily I have knowne no ſpeedier remedy to aſſwage the paine of inflammation, than blood-letting, being firſt made on the *Baſilica* of the grieved ſide for revulſions ſake; and then for evacuation of the conjunct matter on the *vena iſchiadica*, which is at the outſide of the ankle, if the paine of the *Sciatica* be more on the outſide; or elſe on the *Sapheia*, which is on the inſide of the ankle, if the inner parts bee more pained. The quantity of blood which is to be drawne muſt be left to the judgement of the phyſitian, without whoſe adviſe I would attempt nothing in this caſe. Alſo acride glyſters are good, if there be nothing which may hinder, as ulcers of the guts, or hæmorrhoids. ℞. *rad. acor.* ℥ ii. *centaur. rut. ſalv. roriſm. calam. origan. puleg. an.* m ß. *ſtæchad. arabic. flo. cham. melil. aneth. an.* p i. *ſem. aniſ. & fœnic. an.* ℥ ß. *fiat decoctio ad* ℔. i. *in colatura diſſolve hieræ & diaphen. an.* ℥ ß. *mellis anthoſ. ſacch. rub. an.* ℥ i. *olei liliorum* ℥ iii. *fiat clyſter.* Strong purgations are alſo here uſefull, as of *pillul. fœtid. arthritic. Aſſaiereth. de Hermodactilis*, and others uſed in phlegmaticke cauſes. *Electuarium Diacarthami* purgeth choller and phlegme. Often vomitings doe not onely evacuate the humors, but alſo make revulſion, as wee have formerly delivered. Bathes and ſweates profit no otherwiſe than a decoction of *guajacum* or *ſarſaparilla*. If heat moleſt the part, then foment it with oile of roſes and vinegar, eſpecially if the paine be deepe in, for vinegar by its tenuity pierceth to the bottome, and makes way for the oile, which of its owne nature is anodyne. After the uſe of generall medicines you ſhall apply attractive and reſolving things: emplaſters of pitch and *ſulphur*, or of *Ammoniacum*, *euphorbium*, *Terebinthina*, *Propolis*, *Galbanum*, *Bdelium*, *Opopanax*, draw the humour from within to the ſurface or ſkinne. As in like ſort alſo the chymicall oile of ſage, roſemary, pellitory of Spaine, and ſuch other like doe the ſame, which by reaſon of the tenuity of their ſubſtance, and their ſeparation from earthy impurity, have farre more powerfull and expedite faculties to penetrate and diſcuſſe. Yet muſt you uſe none of all theſe without very good judgment and deliberation, otherwiſe there will be danger of inflammation.

Strong purgations in the *ſciatica*.

There may alſo be made fomentations of diſcuſſing and reſolving herbes, as the rootes and leaves of dane-weeds, orris, Bay and Juniper berries, the ſeeds of fænugreeke, aniſe, fennell, the leaves of ſage, roſemary, chamomile, melilote, elder, and the like, boyled in wine and oyle: the following plaſter is much commended by the antients to digeſt, or reſolve and aſſwage the paine, with this which drawes forth thornes, ſplinters, and rotten bones. ℞. *ſem. urtic. mundat. ſpuma borac. ſalis ammoniaci*

moniaci, rad. ariſtoloch. rotund. colocynth. terebinth. venet. an. ʒ x. *fænug. piperis longi, xylobalſam. thur. myrrhæ, adipis cap. gum. pini, an.* ʒ v. *ceræ,* ℔. ß. *lactis ficus ſylv.* ℥ ß. *ex omnibus ſecundum artem præparatis cum olei liliorum, & vini generoſi quantitat. ſufficiente, fiat emplaſtrum.* Let it be applyed to the Hippe. Or, ℞. *ſinapi acerrimo aceto diſſoluti,* ℥ ii. *fermenti acris,* ℥ ß. *pul. hermodact.* ʒ ii. *mellis com.* ℥ iii. *tereb.* ℥ iv. *olei laur. & de ſpicâ, an.* ℥ ii. *far. fænug.* ℥ i ß. *terræ formicarum cum ovis,* ℔ i. *fol. laur. ſalv. rut. roriſmarin. an.* m. ß. *vermium terreſt. præpar.* ℔ ß. The earth with the egges and wormes ſhall be boyled apart with the white wine, and herbes cut in pieces, and theſe being ſtrained out, the reſt of the things ſhall bee added according to art, and then it ſhall be applyed to the Hippe. Or elſe, ℞. *rad. enul. camp. ſigil. ſalom. bryon. biſmal. an.* ℥ ii. *coquantur complete & terantur, trajiciantur per ſetaceum, addendo farin. fænug. & hordei, an.* ℥ i. *olei liliorum, & chamæm. an.* ℥ iii. *tereb.* ℥ iv. *ceræ quantum ſufficit, fiat cataplaſma.* It reſolves, aſſwageth pain, and calleth forth the humours to the skin. Or elſe, ℞. *rad. ſigil. beatæ Mariæ,* ℥ vi. *empl. diachyl. albi,* ʒ iv. *croci in aqua vitæ diſſoluti,* ʒ ii. *terebinth.* ℥ i. *ol. de ſpica nardi quantum ſufficit, fiat empl.* Let it be ſpread upon leather and applyed warme. I have oftentimes ſuddenly aſſwaged the paine of the *ſciatica* by putting to the pained Hip the root of black Bryony cut into ſlices, and applyed, when the matter was cold. Or elſe, ℞. *ceræ citrin. & tereb. abiet. an.* ℥ ii. *liquefiant ſimul in vaſe duplici, & ubi refrixerint, adde pulv. Hermodact.* ℥ ß. *flor. chamæm. irid. flor. an.* ʒ iii. *ſpicæ nardi, flor. thymi, an.* ʒ ii. *interioris cinamomi elect. & ſemin. naſturt. an.* ʒ ii. *croci,* ℈ iv. *malaxantur ſimul manibus axungia porci vetere non ſalita unctis, & fiat maſſa empl.* But if the paine be not by this meanes aſſwaged, then muſt we come to more powerfull medicines, as to uſe great Cupping Glaſſes applyed with much flame, and to veſicatories. As, ℞. *增 cantharid. quibus detractæ ſunt alæ,* ʒ ii. *ſtaphiſagr.* ʒ iii. *ſinapi,* ʒ i ß *fermenti acerrimi* ℥ ß. *incorporentur ſimul, & fiat veſicatorium.* Alſo bliſters may be raiſed by applying the inner rinde of Travailers joy to the wait of ſome two drammes, a little beneath the grieved part: you muſt have a care that the ulcers that remaine after the skinne of the bliſters is taken off, doe run, & be kept open for ſome time after, that ſo more of the humor conteined in the part may bee drawne away. But if wee cannot availe by theſe means, we muſt according to *Hippocrates* his counſaile, come to the laſt and extremeſt temedy. Such (ſaith he) as troubled with a long paine of the *ſciatica*, have their Hippe fall out of joint, their leg conſumes, & they become lame unleſſe they be burnt: we have alſo read the ſame approved by *Celſus*. It is the laſt (ſaith he) and moſt effectuall medicine in longer diſeaſes, to cauterize with hot irons the skinne of the Hippe in three or foure places; and then not to heale up theſe ulcers or fontenels as ſoone as may be, but to keepe them open by putting thereinto bullets of gold, or ſilver, or pills of Gentian, or waxe melted and wrought up with the powder of vitrioll, mercurie, and the like cathæretickes untill the affect againſt which we uſe this remedy be helped, for by this meanes many have bin helped. Therefore three or foure actuall cauteries, or hot irons ſhall be ſo thruſt in about the joint of the Hip, that they may enter into the fleſh ſome fingers breadth, yet ſo that you ſhun the nerves. Cauteryes here doe good, for that by heating the part, they heate and diſſolve the cold humours, they cut, attenuate, and draw forth the groſſe and viſcide, ſo that they flow out by the ulcers, together with the quitture. Over and beſides, the ligaments are ſtrengthened by their cicatrization, and their looſeneſſe helped; & by this meanes the whole part is notably corroberated.

Blacke bryony diſcuſſeth.

A ſtrong veſicatory.

The inner rinde of Travellers-joy a veſicatory.

Aph. ult. ſect. 6.

Lib. 4. cap. 22.

The uſe of cauteries in the *ſciatica.*

CHAP. XXIIII.

Of the flatulent convulſion, or convulſive contraction, which is commonly called by the French, Goute Grampe, *and by the Engliſh, the Crampe.*

What the Cramp is.

The cauſe thereof.

Who ſubject thereto.

The cure.

THat which the French call *Goute grampe*, wee heare intend to treat of, induced thereto rather by the affinity of the name, than of the thing, for if one ſpeake truly, it is a certaine kinde of convulſion generated by a flatulent matter, by the violence of whoſe running downe or motion, oft-times the necke, armes, and legs are either extended, or contracted into themſelves with great paine, but that for a ſhort time. The cauſe thereof is a groſſe and tough vapor, inſinuating it ſelfe into the branches of the nerves, and the membranes of the muſcles. It takes one on the night, rather than on the day, for that then the heat and ſpirits uſually retire themſelves into the entrailes and center of the body; whence it is that flatulencies may bee generated, which will fill up, diſtend and pull the part whereinto they runne, juſt as wee ſee lute-ſtrings are extended. This affect often takes ſuch as ſwimme in cold water, & cauſeth many to be drowned, though excellent ſwimmers, their members by this means being ſo ſtraitly contracted, that they cannot by any meanes be extended. For the ſkin by the coldneſſe of the water is contracted and condenſed, and the pores therof ſhut, ſo that the engendered flatulencies have no paſſage forth. Such as give themſelves to drunkenneſſe and gluttony, or ſloth and idleneſſe, are uſually more frequently troubled with this diſeaſe, by reaſon of their heaping up of crudities. Therefore it is cured by moderate diet, and ordering of the body, and exerciſe of each part therof, for thus they gather ſtrength, and the generation of the flatulent matter is hindered. In the very time when it takes one, the patient ſhall bee cured by long rubbing with warme clothes, and *aqua vitæ*, wherein the leaves of ſage, roſemary, time, ſavory, lavander, cloves, ginger, and the like diſcuſſing and reſolving things, have beene infuſed. The extenſion and flexion of the members or joints, and walking, are alſo good.

The End of the Eighteenth Booke.

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OF THE LUES VENEREA, AND THOSE SYMPTOMES WHICH HAPPEN BY MEANES THEREOF.

THE NINETEENTH BOOKE.

CHAP. I.

A deſcription of the Lues Venerea.

What the *Lues venerea* is.

THe French call the *Lues Venerea*, the Neapolitane diſeaſe, the Italians and Germans [as alſo the Engliſh] terme it the French diſeaſe, the Latines call it *Pudendagra*, others name it otherwiſe. But it makes no great matter how it bee called, if the thing it ſelfe bee underſtood. Therefore the *Lues Venerea* is a diſeaſe gotten or taken by touch, but chiefly that which is in uncleane copulation, and it partakes of an occult quality, commonly taking its originall from ulcers of the privie parts, and then further manifeſting its ſelfe by puſtles of the head, and other externall parts; and laſtly, infecting the entrailes and inner parts with cruell and nocturnall tormenting paine of the head, ſhoulders, joynts, and other parts. In proceſſe of time, it cauſeth knots and hard *Tophi*; and laſtly corrupts and foules the bones, diſſolving them, the fleſh about them being oft-times not hurt; but it corrupteth and weakeneth the ſubſtance of other parts, according to the condition of each of them, the diſtemper and evill habit of the affected bodies, and the inveteration or continuance of the morbificke cauſe. For ſome loſe one of their eyes, others both, ſome loſe a great portion of the eye-lids, otherſome looke very ghaſtly, and not like themſelves, and ſome become ſquint-eyed. Some loſe their hearing, others have their noſes fall flat, the pallat of their mouthes perforated with the loſſe of the bone *Ethmoides*, ſo that in ſtead of free and perfect utterance, they faulter and fumble in their ſpeech. Some have their mouthes drawne awry, others their yards cut off, and women a great part of their privities tainted with corruption. There bee ſome who have the *Urethra* or paſſage of the yard obſtructed by budding caruncles, or inflamed puſtles, ſo that they cannot make water without the helpe of a Catheter, ready to die within a ſhort time, either by the ſuppreſſion of the urine, or by a Gangrene ariſing in theſe parts, unleſſe you ſuccour them by the amputation of their yards. Others become lame of their armes, and otherſome of their legges, and a third ſort grow ſtiffe by the contraction of all their members, ſo that they have nothing left them ſound but their voice, which ſerveth for

What hurt it doth to the body.

for no other purpoſe but to bewaile their miſeries, for which it is ſcantly ſufficient. Wherefore ſhould I trouble you with mention of thoſe, that can ſcantly draw their breath by reaſon of an *Aſthma*, or thoſe whoſe bodies waſte with a hecticke feaver and ſlow conſumption? It fares farre worſe with theſe, who have all their bodies deformed by a Leproſie ariſing therehence, and have all their throttles and throates eaten with putride and cancrous ulcers; their haire falling off from their heads, their hands and feet cleft with tetters and ſcaly chinkes: neither is their caſe much better, who, having their braines tainted with this diſeaſe, have their whole bodies ſhaken by fits of the falling ſickneſſe; who troubled with a filthy and curſed flux of the belly, doe continually caſt forth ſtinking and bloudy filth. Laſtly, there are no kinds of diſeaſes, no ſorts of ſymptomes, wherewith this diſeaſe is not complicate, never to be taken away, unleſſe the virulencie of this murrain be wholly taken away, and impugned by its proper Antidote, that is, *argentum vivum*.

The Leproſie ſometimes the off-ſpring of the *Lues venerea*.

CHAP. II.

Of the cauſes of the Lues Venerea.

THere are two efficient cauſes of the *Lues venerea*; the firſt is, a certaine occult and ſpecificke quality, which cannot be demonſtrated; yet it may be referred to God, as by whoſe command this hath aſſailed mankind, as a ſcourge or puniſhment to reſtraine the too wanton and laſcivious luſts of unpure whoremongers. The other is an impure touch or contagion, and principally, that which happeneth in copulation. Whether the man or woman have their privities troubled with virulent ulcers, or bee moleſted with a virulent ſtrangury (which diſeaſe crafty Whores colour by the name of the whites) the malignity catcheth hold of the other; thus a woman taketh this diſeaſe by a man caſting it into her hot, open and moiſt wombe; but a man taketh it from a woman, which, for example ſake, hath ſome ſmall while before received the virulent ſeed of a whore-maſter polluted with this diſeaſe, the mucous ſanies whereof remaining in the wrinckles of the womans wombe, may be drawne in by the pores of the ſtanding and open yard, whence ſucceede maligne ulcers, and a virulent ſtrangury. This virulencie, like a torch or candle ſet on fire, will by little and little bee propagated and ſent by the veines, arteries and nerves to the noble parts; whoſe malignity a ſtrong liver not enduring, by the ſtrength of the naturall expulſive facultie, will ſend it into the groines, whereon follow Abſceſſes, therefore called venereall Bubo's. Theſe, if they returne in againe, and caſt not forth matter by being opened, they will, by their falling back into the veins and arteries, infect the maſſe of the bloud by the like tainture, & thence will enſue the *Lues venerea*. Yet this diſeaſe may be got by a more occult manner of touch, as by breathing only. For it is not altogether beſides reaſon and experience, that a woman long troubled with this diſeaſe, may by importunate and often kiſſing, transfuſe malignity into a child; for the tender and ſoft ſubſtance of a little childe may bee altered, infected, and by little and little corrupted by receiving of filthy, and in their whole kinde maligne vapours. For it is knowne, and now vulgarly believed, that mid-wives by receiving the child of a woman infected with this diſeaſe, to have got this affect, the malignity being taken and drawne into their bodies through the pores of their hands by the paſſages of the veines and arteries. Neither doth it ſpare any condition, ſexe, nor age of men: for, not onely whoſoever uſe copulation, but ſuch as onely lye with them, may bee taken by this virulencie; yea verily, if they onely lye in the ſheets or coverings which retaine his ſweat, or the virulencie caſt forth by an ulcer. The ſame danger may aſſaile thoſe who ſhall drinke in the ſame veſſell after ſuch as are troubled with this diſeaſe. For by the impure touch of their lips, they leave a virulent *ſanies* and ſpittle upon the edges of the cup, which is no leſſe contagious in its kinde than the virulencie of leprous perſons, or the fome of madde dogs. Wherefore it is no marvell if children nurſed by an infected nurſe, draw in the ſeeds of this diſeaſe together

The *Lues venerea* the ſcourge of whoremongers.

Venereall Bubo's returning in again occaſion the *Lues venerea*.

The *Lues venerea* may be got by the only communication of vapours.

How nurſes may infect children, and they their nurſes.

gether with the milk, which is only bloud whitened in the breaſts; or infected ſucking children by their hot and ulcerated mouthes, may tranſ-fuſe this malignity into the body of the nurſe, by the rare, looſe and porous ſubſtance of the dugs which it frequently ſucketh.

A hiſtorie.

This following hiſtory is very memorable to this purpoſe. A certaine very good Citizen of this Citie of Paris granted to his wife being a very chaſte woman, that conditionally ſhee ſhould nurſe her owne child of which ſhee was lately delivered, ſhee ſhould have a nurſe in the houſe to eaſe her of ſome part of the labour: by ill hap, the nurſe they tooke was troubled with this diſeaſe; wherefore ſhee preſently infected the childe, the child the mother, the mother her husband, and hee two of his children who frequently accompanied him at bed and board, being ignorant of that malignity wherewith hee was inwardly tainted. In the meane while the mother when ſhee obſerved that her nurſe childe came not forward, but cryed almoſt perpetually, ſhee asked my counſell to tell her the cauſe of the diſeaſe; which was not hard to bee done, for the whole body thereof was repleniſhed with venereall ſcabs and puſtles, the hired nurſes and the mothers nipples were eaten in with virulent ulcers; alſo the fathers, and the two other childrens bodies, whereof the one was three, the other foure yeares old, were troubled with the like puſtles and ſcabs. I told them that they had all the *Lues venerea*, which tooke its originall and firſt offſpring by maligne contagion from the hired nurſe. I had them in cure, and by Gods helpe healed them all, except the ſucking child, which died in the cure. But the hired nurſe was ſoundly laſhed in the priſon, and ſhould have beene whipped through all the ſtreets of the Citie, but that the magiſtrate had a care to preſerve the credite of the unfortunate family.

CHAP. III.

In what humour the malignity of the Lues venerea *reſides.*

THough in the opinion of many the antecedent cauſe of this diſeaſe be the maſſe of bloud conteining the foure humours, yet I had rather place the matter, and primary, and chief ſeat thereof in groſſe and viſcide phlegme infected with the maligne quality of the venereous venome, and from this beginning and foundation, I thinke by a certaine contagious growth it ſooner or later infects the other humours, as each of them is diſpoſed or apt to ſuffer. Of which my opinion there are many arguments, but this chiefely, That by the evacuation of a phlegmaticke humour, whether by the mouth and ſalivation, or by ſtoole, urine, or ſweate in men of what temper ſoever, whether cholerick, ſanguine or melancholy, the diſeaſe is helped or cured. Secondly, for that the exceſſe of paine is more by night than by day, becauſe then the phlegme bearing ſway, ſevers the *periostium* from the bone, or elſe offends it and the reſt of the membranous and nervous bodies by the acrimony of its malignity. Thirdly, becauſe the patients are hurt by the uſe of cold things, but uſually finde benefit by hot medicines, whither they bee oyntments, plaſters, fumigations, or whatſoever elſe, inwardly taken, or outwardly applyed. Fourthly, for that in venereous puſtles, there is found a certaine hardneſſe at the roote, though outwardly they make ſhew of choler or bloud. For being opened, you ſhall finde them ſtuffed with a certaine plaſter-like and tophous matter, or elſe with tough phlegme, or viſcous *pus*; whence ariſe theſe hard *tophi*, or bony excreſſences upon the bones, if not from phlegmaticke humours there heaped up and concrete? Fifthly, for that the ſpermaticke and cold parts doe primarily and principally feele the harme of this diſeaſe. Sixtly, for that the ulcers which over-ſpread the body by meanes of this diſeaſe, admit of no cure, unleſſe you firſt cauſe ſweats. Therefore if the matter of the diſeaſe, and ſuch ulcers as accompany it were hot and dry, it would grow worſe, and be rather increaſed by a decoction of *Guajacum*, the roots of *China*, or *ſarſaparilla*. Seventhly, becauſe oft-times this diſeaſe, the ſeede thereof being taken or drawne into the body, ſo lyeth hid for the

Why the paine is worſe upon the night than on the day.

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This diſeaſe ſometimes lyes long hid in the body before it ſhew it ſelfe.

ſpace of a yeare, that it ſhewes no ſigne thereof, which happens not in diſeaſes proceeding from an hot matter, which cauſeth quick and violent motions. By this it appeareth that the *baſis* and foundation of the *Lues venerea* is placed or ſeated in a phlegmatick humour; yet may I not deny, but that other humours confuſed therewith may be alſo in fault, and defiled with the like contagion. For there are ſcarce any tumours which proceed from a ſimple humour, and that of one kinde; but as in tumours, ſo here the denomination is to be taken from that humour which carryeth the chiefe ſway.

Chap. IIII.

Of the ſignes of the Lues Venerea.

When the *Lues venerea* is lately taken, maligne ulcers appeare in the privities, ſwellings in the groines, a virulent ſtrangury runneth oft-times with filthy *ſanies*, which proceeds either from the *proſtata*, or the ulcers of the *urethra*; the patient is troubled with paines in his joynts, head, and ſhoulders, and as it were breakings of his armes, legges and all his members, they are weary without a cauſe, ſo that neither the foot nor hand can eaſily performe his duty; their mouths are inflamed, a ſwelling troubles their throats, which takes away their freedom of ſpeaking & ſwallowing, yea of their very ſpittle; puſtles riſe over all their bodies, but chiefly certaine garlands of them engirt their temples and heads; the ſhedding or loſſe of the haire, diſgraceth the head and chin; and leaneneſſe deformeth the reſt of the body; yet all of theſe uſe not to appeare in all bodies, but ſome of them in ſome. But the moſt certaine ſignes of this diſeaſe are, a callous ulcer in the privities, hard and ill conditioned, and this ſame is judged to have the ſame force in a prognoſticke, if after it be cicatrized, it retaine the ſame callous hardneſſe; the Bubo's, or ſwellings in the groines to returne backe into the body without comming to ſuppuration, or other manifeſt cauſe: theſe two ſignes, if they concurre in the ſame patient, you may judge or foretell that the *Lues venerea* is either preſent, or at hand; yet this diſeaſe happeneth to many without the concourſe of theſe two ſignes, which alſo bewrayeth it ſelfe by other manifeſt ſignes, as ulcers and puſtles in the reſt of the body, rebellious againſt medicines though powerfull, and diſcreetely applyed, unleſſe the whole body bee annoynted with *Argentum vivum*. But when as the diſeaſe becommeth inveterate, many become impotent to venery, and the malignity and number of the ſymptomes encreaſe, their paines remaine fixed and ſtable, very hard and knotted *tophi* grow upon the bones; and oft-times they become rotten and foule, as alſo the hands and feete by the corruption of ſalt phlegme are troubled with chops or clefts, and their heads are ſeazed upon by an *ophiaſis* and *alopecia*; whitiſh tumours with roots deepe faſtned in, ariſe in ſundry parts of the body, filled with a matter like the meate of a cheſnut, or like a tendon; if they be opened they degenerate into divers ulcers, as putride, eating, and other ſuch, according to the nature and condition of the affected bodies. But why the paines are more grievous on the night ſeaſon: this may bee added to the true reaſon wee rendred in the precedent Chapter; firſt for that the venereous virulencie lying as it were aſleepe is ſtirred up and enraged by the warmeneſſe of the bed and coverings thereof; Secondly, by reaſon of the patients thoughts which on the night ſeaſon are wholly turned and fixed upon the onely object of paine.

The moſt certaine ſignes of the *Lues venerea*.

Two other cauſes of the exceſſe of paine in the night.

CHAP. V.

Of Prognoſticks.

The ſignes of a curable *Lues Venerea.*

IF the diſeaſe be lately taken, aſſociated by a few ſymptomes, as with ſome ſmall number of puſtles, and little & wandring paines, and the body beſides bee young and in good caſe, and the conſtitution of the ſeaſon bee good and favourable, as the ſpring, then the cure is eaſie, and may bee happily performed. But on the contrary, that which is inveterate and enraged by the fellowſhip of many and maligne ſymptomes, as a fixed paine of the head, knots and rottenneſſe of the bones, ill natured ulcers in a body very much fallen away and weake, and whereof the cure hath beene already ſundry times undertaken by Empyricks, but in vaine; or elſe by learned Phyſicians, but to whoſe remedies, approved by reaſon and experience, the malignity of the diſeaſe and the rebellious virulency hath refuſed to yeeld, is to be thought uncurable, eſpecially, if to theſe ſo many evils, this bee added, that the patient bee almoſt waſted with a conſumption and hectick leanenеſſe, by reaſon of the decay of the native moiſture. Wherefore you muſt onely attempt ſuch by a palliative cure; yet bee wary here in making your prognoſticke: for many have beene accounted in a deſperate caſe, who have recovered; for by the benefit of God and nature, wonders oft-times happen in diſeaſes. Young men who are of a rare or laxe habit of body are more ſubject to this diſeaſe, than ſuch as are of a contrary habit and complexion. For as not all who are converſant with ſuch as have the Plague, or live in a peſtilent aire, are alike affected; ſo neither all who lye or accompany with ſuch as have the *Lues venerea*, are alike infected or tainted. The paines of ſuch as have this diſeaſe, are farre different from the paines of the Gout. For thoſe of the Gout returne and torment by certaine periods and fits, but the other are continuall and almoſt alwaies like themſelves; Gouty paines poſſeſſe the joynts, and in theſe condenſe a plaſter-like matter into knots; but thoſe of the Pocks are rather faſtened in the middeſt of the bones, and at length diſſolve them by rottenneſſe and putrefaction. Venereous ulcers which are upon the yarde are hard to cure, but if being healed, they ſhall remaine hard and callous, they are ſignes of the diſeaſe lying hidde in the body.

The ſignes of an uncurable one.

How theſe pains differ from thoſe of the gout.

The *Lues venerea* bcomes more gentle than formerly it was.

Generally, the *Lues venerea* which now reigneth is farre more milde and eaſie to bee cured than that which was in former times, when as it firſt began amongſt us: beſides, each day it ſeemeth to bee milder than other. Aſtrologers think the cauſe hereof to bee this, for that the cœleſtiall influences which firſt brought in this diſeaſe, in ſuccceſſe of time by the contrary revolutions of the Starres, loſe their power and become weake; ſo that it may ſeeme ſomewhat likely, that at length after ſome few yeares it may wholly ceaſe; no otherwiſe than the diſeaſe termed *Mentagra*, which was very like this in many ſymptomes, and troubled many of the Romans in the raigne of *Tiberius*; and the *Lichen*, which in the time of *Claudius* (who ſucceeded *Tiberius*) vexed not onely *Italy*, but all *Europe* beſides. Yet Phyſicians had rather take to themſelves the glory of this leſſe raging diſeaſe, and to referre it to the many and wholſome meanes, which have beene invented, uſed and oppoſed thereto by the moſt happy labours of noble wits.

CHAP. VI.

How many, and what meanes there are to oppugne this diſeaſe.

Why the decoction of *Guajacum* is not ſufficient to impugne the diſeaſe.

MAny ſorts of remedies have beene found out by many to oppugne and overcome this diſeaſe. Yet at this day there are onely foure which are principally uſed. The firſt is by a decoction of *Guajacum*; the ſecond by unction; the third by emplaſters, and the fourth by fumigation; all of them by *Hydrargyrum*, the firſt excepted. Yet that is not ſufficiently ſtrong and powerfull; for experience hath taught, that the decoction of *Guajacum* hath not ſufficient ſtrength to extinguiſh the venome of the venereous virulency, but onely to give it eaſe for a time; for becauſe it heates, attenuates, provokes ſweate and urine, waſtes the excrementitious humours by drying them, it ſeemeth to cure the diſeaſe, for that thereupon, for ſome time, the paine and all other ſymptomes ſeeme more remiſſe; but theſe endeavours are weake and deceitfull, as whereby that only which is more ſubtle in the humours in fault, is exhauſted and diſperſed by ſweat.

Hydrargyrum is ſufficient to overcome the diſeaſe.

But *Hydrargyrum*, as a certaine higher power, conteines therein all the power of *Guajacum*, yet much more excellent and efficacious; for beſides that it heats, attenuates, cuts, reſolves and dryes, it provokes ſweat and urine, and beſides it expels noxious humours upwards and downewards, by the mouth and ſtoole. By which evacuations not onely the more ſubtle, but alſo the more groſſe and fœculent excrements, wherein the ſeat of this diſeaſe is properly fixed, are diſperſed and evacuated; by which the Phyſician may bee bold to aſſure himſelfe of certaine victory over the diſeaſe. But after the uſe of the decoction of *Guajacum*, freſh paines and knots ariſe by the reliques of the more groſſe and viſcous humours left in the cavities of the entrailes; but *Hydrargyrum* leaves no reliques behind it.

CHAP. VII.

How to make choice of the wood Guajacum.

The faculty.

THat is preferred before the reſt, which is of a great logge, of a dusky colour, new, gummy, with a freſh ſtrong ſmell, an acride and ſomewhat biting taſte, the barke cleaving very cloſe to the wood. It hath a faculty to heat, rarifie, attenuate, attract, to cauſe ſweat, and move urine, and beſides by a ſpecifick property to weaken the virulency of the *Lues Venerea*.

The parts.

The hot and fiery faculty of the barke.

There are three ſubſtances taken notice of in this wood: the firſt is the barke, the other is a whitiſh wood which is next to the barke, the third is the heart of the wood, that is, the inner, blackiſh, and more dusky part thereof. The barke is the more dry, wherefore you ſhall uſe it whenas you would dry more powerfully; the middle ſubſtance is more moiſt, becauſe it is more ſucculent and fat; that which lyeth betweene both is of a milde temper. Wherefore the two laſt are more convenient for delicate natures and rare bodies, which require leſſe drying. Furthermore, the barke muſt be given to denſe and ſtrong natures, that by the more fierie force thereof, the humours may be made more fluide, and the paſſages of the body more paſſable. But I would here bee underſtood to meane ſuch barke as is not putride and rotten with age, to which fault it is very ſubject, for that long before it bee ſhipped by our people, the wood lyeth in heapes upon the ſhore in the open aire, untill they can finde chapmen for it; which, when it is brought aboard, it is ſtowed in the hold or bottome of the ſhip, where beneath by the ſea through the chinkes of the bords, and above by the mariners, it uſually gathereth much dirt. When it is brought hither to us, it is bought and ſold by weight, wherfore that it may keep the weight, the Druggiſts lay it up in vaults and cellars under ground, where the ſurface thereof bedewed with much moiſture can ſcarce eſcape mouldineſſe and rottenneſſe. Wherefore I doe not like to give the decoction either of the barke or wood which is next thereto to ſickle people.

CHAP. VIII.

Of the preparation of the decoction of Guajacum.

First you muſt have your *Guajacum* ſhaved into ſmall pieces, and to every pound of the ſhavings, adde of faire water eight, ten, or twelve pints, more or leſſe as the nature of the party, and condition of the diſeaſe ſhall ſeeme to require, according to the rule of the formerly mentioned indications. Let the water be hot or warme, eſpecially if it be in winter, that ſo it may the more eaſily & throughly enter into the body of the wood, & draw into it ſelfe the faculties thereof in the ſpace of twenty foure houres, wherein it is macerated; then boyle it *in balneo*, to avoyd *empyreuma*, or taſte of fire, which it will contract by boyling it over a hot fire. Yet ſome nothing regard this, but thinke the patient ſufficiently ſerved, if they make a decoction in an earthen pot well glaſed, over a gentle fire, ſo that no part of the liquor may runne over the mouth of the veſſel, for that thus ſo much of the ſtrength of the decoction might vaniſh away. Howſoever it be made, let it be boyled to the conſumption of half, a third, or fourth part, as the nature of the patient, & diſeaſe ſhall ſeem to require. There be ſome who mixe divers ſimples therwith, which have an occult and proper ſimpathy with that part of the body which is principally hurt by the diſeaſe, which at the leaſt may ſerve inſtead of a vehicle to carry the faculties of the decoction thither where the diſeaſe moſt reigneth. Others adde thereto purging medicines, whoſe judgement I cannot approve of, for that I thinke it is not for the patients good to attempt two evacuations at once, that is, to expell the humors by ſweat by the habit of the body, and by purging by the belly; for that as much urine, ſo alſo much ſweat ſhewes little evacuation by ſtoole. For theſe two motions are contrary, which nature cannot brooke at once. For purging drawes from the circumference to the Center, but ſweat runs a quite contrary courſe, and this is the opinion of many & great phyſicians. This firſt decoction being boyled out, & ſtrained the like quantity of water ſhall be put to the ſtuffe, or maſſe, that ſo being boyled again without any further infuſion, & ſtrained, with the addition of a little cinamon for the ſtrengthening of the ſtomacke, the patient may uſe it at his meales, and betweene his meales, if he be dry, for his ordinary drinke. The quantity of the firſt decoction to be taken at once, ought to be ſome five or ſixe ounces, and it ſhall be drunke warm, that ſo it may be the ſooner brought into action, and leſt the actuall coldneſſe ſhould offend the ſtomacke; and then the patient being well covered, ſhall keep himſelf in bed, and there expect ſweat, which if it come ſlowly on, it ſhall bee helped forwards with ſtone bottles filled full of hot water, and put to the ſoles of the feet. If any parts in the interim ſhall bee much pained, they ſhall bee comforted by applying of ſwines bladders halfe filled with the ſame decoction heated. Neither will it bee unprofitable before the decoction bee drunke, to rubbe over all the body with warme linnen clothes, that by this meanes the humours may be attenuated, and the pores of the skinne opened. When he ſhall have ſweat ſome two houres, the parts oppoſite to the grieved places, ſhall firſt be wiped, then preſently, but more gently, the grieved parts themſelves, leſt a greater confluxe of humours flow thereto. Theſe things being done, he ſhall keep himſelf in bed, ſhunning the cold aire untill he be cooled and come to himſelfe againe, ſome two houres after, hee ſhall ſo dine, as the diſeaſe and his former cuſtome ſhall ſeeme to require; ſixe houres after, betaking himſelfe to his bed, hee ſhall drinke the like quantity of the decoction, and order himſelfe as before. But if he be either weake, or weary of his bed, it ſhall bee ſufficient to keepe the houſe without lying downe; for although he ſhall not ſweate, yet there will be a great diſſipation of the vapours, and venenate ſpitits, by inſenſible tranſpiration; for the *Lues venerea* by the onely communication of theſe, often times catcheth hold, and propagates it ſelfe in lying with a bedfellow tainted therewith. But as it is requiſite to have let blood, and purged the body by the adviſe of a phyſitian, before the taking of the decoction of *Guajacum*; ſo whileſt hee doth take it, it much conduceth to keepe the belly ſoluble

The proportion of the *Guajacum* to the water.

Why the decoction ought to be performed with a dry heat.

Whether it bee fit to adde purges to a decoction of *Guajacum*.

Hip. aph. ult. ſect. 6.

How, and in what quantity this decoction muſt be taken.

How to dry the ſweat of the body.

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How long this decoction muſt be uſed.

The manner of diet.

(which is much bound by the heat & drineſſe of ſuch a drink) and to preſerve the purity of the firſt veines by a glyſter, or laxative medicine taken every fifth, or ſixt day. But for the uſe of it, we muſt warily obſerve, taking indication not onely from the malignity, and contumacy of the diſeaſe, but alſo from the particular nature of the patient; for ſuch as have their body waſted by heat and leaneneſſe, and their skinne dry and ſcaily (whence you may gather a great aduſtion of the humours, and, as it were, a certaine incineration of the habit of the body) muſt more ſparingly make uſe of theſe things, but rather temper the body by humecting things taken inwardly, and applyed outwardly, as bathes, ointments without quickſilver, and other ſuch like things. And then a very weake decoction of *Guajacum* ſhall bee uſed for a few dayes before your unction with Quicke-ſilver. A more plentifull diet, as it drawes forth the diſeaſe, which of its owne nature is long, ſo a more ſparing and ſlender diet makes the ulcers more rebellious and contumacious, by a hecticke drineſſe.

To whom, and what manner of wine may be allowed.

The deſcription of China.

The preparation.

Of *Sarſaparilla.*

Therefore a middle courſe muſt be kept, and meats made choice of which are fit, and naturally engender good and laudible juice in the body. For it is not only great ignorance, but much more cruelty, to goe about to conteine all patients without any difference, within the ſtrait allowance of four ounces of Ship-bisket, and twelve damaske prunes: for I judge it farre better to diet the patient with Lambe, Veale, Kid, Pullets, fat Larkes, and Blacke-birds, as thoſe which have a farre greater familiarity with our bodies, than Prunes and the like Junkets. Let his bread bee made of white wheat, well leavened, neither too new, or tough, neither too old or hard. Let his drinke be made of the maſſe, or ſtrainings of the firſt decoction of *Guajacum* boiled with more water, as was formerly mentioned; yet if there ariſe any great weakeneſſe of the faculties, you may permit the uſe of ſome little wine, drinking eſpecially before each meale a cup of the laſt mentioned decoction. Let him avoyd ſleepe preſently after meat, for ſo the head is filled with groſſe vapoures. Paſſions or perturbations of the mind muſt alſo be avoyded, for that by theſe the ſpirits are inflamed and diſſipated; all delights of honeſt pleaſure are to be deſired, but venery wholly avoyded, as that which weakens all the nervous parts. Many in ſtead of a decoction of *Guajacum*, uſe a decoction of *China*. Now this *China* is the roote of a certain ruſh, knotty, rare, & heavie, when it is freſh, but light when it is waxed old; it is alſo without ſmell, whence many judge it voyd of any effectuall quality, it is brought into uſe out of *India*; it is thus prepared, it is cut into thin round ſlices, boyld in fountaine or river water, and is given to patients to drink morning and evening after this manner. ℞. *rad. chin. in taleol. ſect.* ℥ ii. *aquæ font.* ℔ xii. *infundantur per hor.* xii. *& coquantur ad conſumption. tertiæ partis.* Let him take ℥ vi. in the morning, and ſo much at night; let him expect a ſweat in his bed: a ſecond decoction may be made of the maſſe remaining of the firſt, but with a leſſe quantity of water put thereto, which alſo by longer boyling may draw forth the ſtrength remaining in the maſſe, & be uſed at meals for ordinary drink. There are ſome who make a third decoction therof, but that is wholy unprofitable and unuſefull. *Sarſaparilla* is prepared alſo juſt after the ſame manner.

Chap. IX.

Of the ſecond manner of curing the Lues venerea, *which is performed by friction, or unction.*

When the body muſt be, prepared with humecting things before unction.

THe cure of the *Lues venerea* which is performed by unction and friction is more certaine, yet not in every kinde, condition and ſeaſon thereof. For if the diſeaſe bee inveterate from an humour, tough, groſſe, viſcous, and more tenaciouſly fixed in the ſolid parts, as you may gather by the knotty tumours of the bones; for then we are ſo farre from doing any good with a friction uſed at the firſt, that on the contrary wee bring the patient in danger of his life, unleſſe we ſhall have firſt prepared the humour to expulſion, by emollient & digeſting things firſt uſed. But if it be lately taken with moveable paines, puſtles, and ulcers in the jawes, throate, and privie parts, then may it be eaſily cured without ſuch preparatives, eſpecially if the humour be ſufficiently obedient, and as it were prepared of it ſelfe, and its owne nature. Therefore firſt uſing generall medicines, you may afterwards come to uſe the unction with *Hydrargyrum.*

CHAP. X.

Of the choice, preparation and mixing of Hydrargyrum.

H*ydrargum* which is cleere, thinne, white and fluide, is the beſt: on the contrary, that which is livid, and not ſo fluide, is thought to be adulterated by the admixture of ſome lead. That it may be the purer, ſtraine it through ſome ſheepes leather, for by preſſing it, when it is bound up, it paſſeth through by its ſubtlety, and leaves the filth and leaden droſſe behinde it on the inſide. Then it may be boyled in vinegar with ſage, roſemary, time, chamomile, melilote, and ſtrained againe, that ſo many waies cleanſed, it may enter into ointments and plaiſters. To kill it more ſurely, it ſhall bee long wrought, and as it were ground in a mortar, that it may bee broken and ſeparated into moſt ſmall particles, that by this meanes it may not bee able to gather it ſelfe into the former body: to which purpoſe you may alſo adde ſome *ſulphur*, or ſublimate, as we ſhall ſhew hereafter. It is moſt uſually mixed with hogs greaſe, adding thereto ſome oyle of turpentine, nutmegs, cloves, ſage, and *Galens* treacle. If a *Leucophlegmatia* together with the *Lues venerea* affect the body, then hot, attenuating, cutting, and drying things ſhall be added to the medicine, which ſhall be provided for unction; the ſame ſhall be done when as we would have it to enter into the ſubſtance of the bones. But if the patient be of a cholericke temper, and his blood eaſie to be inflamed, you ſhall make choice of leſſe hot, attractive and diſcuſſing things. As when the body ſhall be repleniſhed with knotty and ſcirrhous tumours, or ſqualide by exceſſive dryneſſe, then ſhall emollient and humecting things bee mixed therewith. But that ſuch ointments may have a better conſiſtence, I uſe to adde to each pound thereof, four, five, or ſixe yolkes of hard egges. Therefore this ſhall be the forme of the ointment called Vigoes. ℞. *axung. porci,* ℔ i. *olei chamæm. anethi, maſtich. & laurini, an* ℥ i. *ſtyrac. liquid.* ʒ x. *rad. enulæ, camp. parum tritæ, & ebuli, an.* ℥ iii. *pul. euphorb.* ℥ ß. *vini oderif.* ℔ i. *bulliant omnia ſimul uſque ad conſumptionem vini, deinde colentur: colaturæ adde lythargyræ auri,* ℥ vi. *thuris, maſtich. an.* ʒ vi. *reſ. pini,* ℥ i ß. *tereb. venet.* ℥ i. *argenti vivi,* ℥ iv. *ceræ albæ,* ℥ i ß. *liquefactis oleis, cum cera incorporentur omnia ſimul, fiat linimentum ad uſum.* Or elſe, ℞. *argenti vivi præparati,* ℥ vi. *ſublimiti,* ʒ ß. *ſulphuris vivi,* ℥ ß. *axung. porci, ſalis expertis,* ℔ i. *vitellos ovorum ſub cineribus coctorum,* nu. iii. *olei terebinth. & laurini, an.* ℥ ii. *theriac. vet. & methridat.* ℥ ß. *fiat linimentum ut artis eſt.* You ſhall compoſe it thus, firſt the *ſublimatum* and *ſulphur* ſhall be finely poudered, then ſome part of the *Argentum vivum* and hogs greaſe put to them, then preſently after, ſome of the hard yolkes of egges, continually and diligently ſtirring and mixing them all together. All theſe being well incorporate, adde ſome more *argentum vivum*, hogges greaſe, and yolks of egges, and incorporate them with the former; at the laſt adde the oiles, then Treacle, and Mithridate, and ſo let them all be beaten together for a whole daies ſpace, and thus you ſhall make an ointment of a good conſiſtence, which I have often uſed with good ſucceſſe. Yet the hogges greaſe ſhall be firſt boyled with the hot herbs good for the ſinewes, as ſage, roſemary, time, marjerome, lavander, and others which the ſeaſon affoords. For ſo the *axungia* acquires a more attenuating faculty, and conſolidating of thoſe parts which the *Lues venerea* afflicts. Beſides, when unguents are made for this purpoſe, that ſuch virulency may be drawne from within outwards, by ſweats and tranſpiration through the pores of the ſkinne, no man need doubt, but that they ought to be furniſhed with relaxing, rarifying, and attractive faculties. But *axungia*, beſides that it is very fit to kill the *argentum vivum*, it alſo relaxeth and mollifieth. Now *Oleum laurinum, de ſpica, rutaceum,* rarifie, digeſt, and aſſwage paine. Turpentine alſo extinguiſheth

How to kill *argentum vivum.*

What to mixe therewith.

An unction with *argentum vivum.*

Another.

How to make it

How to prepare the hogs-greaſe before you mixe the *argentum vivum* there-with.

guiſheth, and bridleth the *argentum vivum*, moderately heates, reſolves and ſtrengthens the nervous parts. But *argentum vivum* is the proper antidote of the *Lues venerea*, as that which cures it howſoever uſed, drying by the ſubtlety of the parts, and provoking ſweat. Verily Treacle and Methridate ſomewhat conduce to retund the virulency of this diſeaſe, but unleſſe *argentum vivum* aſſiſt as a ferret to hunt, and an *alexiterium* to impugne the diſeaſe, they can doe no great matter.

Chap. XI.

How to uſe the Unction.

THe body and humours apt to cauſe or nouriſh a *plethora* or inflammation, being prepared by digeſtive ſyrupes, and evacuated by purging and bleeding as is fitting, according to the direction of ſome Phyſitian, the patient ſhall be ſhut up in a parlour or chamber, hot either by nature or art, & free from cold blaſts of wind. For cold is moſt pernitious in this diſeaſe, both for that it hurts the nervous parts, already ill affected by reaſon of the diſeaſe, as alſo for that it leſſens the efficacy of medicines. Wherefore many doe ill in this, who, whether in winter or ſummer, anoint their patients in a large room, expoſed on every ſide to the winds. They deale ſomewhat more wiſely, who put a cloath faſtened like halfe a tent preſently behinde the patient, though anointed by the fire ſide, ſo to keep away the cold aire from him. Yet it is ſafeſt to ſet, and anoint the patient either in a little roome, or elſe in ſome corner of a large roome, ſeparated from the reſt of the room by ſome hangings, and building a ſtove, or making ſome fire therein, for ſo he may ſtand or ſit as he beſt likes, the longer, and with the leſſe offence, and be equally heated on every ſide, whereas ſuch as are anointed in a chimney by a fires ſide cannot but be heated unequally, being ready to burne on the one ſide, whileſt the other is cold, which motions are contrary and hurtfull to that we require: beſides, if the patient ſhall bee weake, hee cannot ſtand and endure the heat of the fire. Or if hee bee ſhamefac't, he will bee unwilling to ſhew all his body at once naked to the Surgeon, but he may without any harme, and with modeſty, lying on a bed in a little roome, wherein a ſtove is made, have all his limmes anointed about the joints, and preſently bound up, either with ſtoupes, or carded cotton, or browne paper.

Cold moſt hurtfull to ſuch as are troubled with the *Lues venerea*.

Chap. XII.

What cautions to be obſerved in rubbing or anointing the patient.

HE ſhall be anointed or rubbed over with the ointmēt in the morning, the concoction & diſtribution of the meat being perfected, which functions otherwiſe would not be well performed, the powers of nature being diſtracted into ſeverall operations. Yet if the patient ſhall be weak, you may ſome houre before the unction, give him ſome gelly, the yolk of an egge, or ſome broath made of meate, boiled to pieces, but very ſparingly, leſt nature, intent upon the concoction of ſolid meats, or in great quantity, ſhould bee drawne away from that which we intend. At firſt let onely the joints of the limmes be anointed, as about the wreſts, elbowes, knees, anckles, ſhoulders. But afterward, if the patient ſhall be more ſtrong, and a greater commotion of the humours and body ſeem neceſſary, the emunctories of the principall parts may alſo be anointed, and the whole ſpine of the backe; yet having much care, and alwaies ſhunning the principall and noble parts, leſt we ſhould doe as thoſe butcherly Empericks doe, who equally, and in like manner daube and rubbe over all the body, from the ſoles of the feete, to the crowne of the head: moreover, diligent regard muſt bee had of thoſe parts, which are ſeazed upon by the ſymptomes of this diſeaſe, that they may bee more anointed, and that it may be more throughly rubbed in. Yet you muſt al-

The patient, if it may be conveniently done, muſt be anointed faſting.

In what places the body muſt be anointed.

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waies begin your anointing or rubbing at thoſe parts which are leſſe offended, leſt the humours ſhould be drawne in greater meaſure to the grieved part. And as gentle frications do not ſufficiently open the pores of the skin, ſo more ſtrong and hard ones ſhut them up, cauſe paine, and more plentifully attract the morbificke matter. Wherefore it will be more convenient to uſe moderate frictions, taking indication from the ſtrength of the patient, as that whereto we muſt ſtill have the chiefe regard. There is alſo another thing wherto the phyſitian & Surgeon muſt diligently attend, as that, which if it be not carefully prevented, will either haſten the death of the patient, or make him ſubject to a relapſe; that is, the quantitie of the remedies and unctions, and the number of the frictions. Which conſideration, together with that which is of the degrees of the temperaments of the whole body, and each part thereof, much troubles and exerciſeth the mindes of good Phyſitians, and maketh the art conjecturall, it is ſo farre from being attained to by Empericks. Yet we muſt endeavour by method and reaſon, that by the rule of indications ſo frequently mentioned, we may attaine to the knowledge thereof, as neare as may bee. For to have perfect knowledge hereof, and to ſay that thoſe need only foure, others five, and other ſome ſixe, more or fewer frictions at the beginning, which Empericks commonly doe, is a thing both impoſſible and vaine. All theſe muſt bee changed and ordered according to the malignity and continuance of the diſeaſe, and the condition of the affected bodies. Verily wee muſt ſo long uſe frictions and unctions, untill the virulent humours bee perfectly evacuated by ſpitting and ſalivation, by ſtoole, urine, ſweat or inſenſible tranſpiration. Which you may underſtand by the falling away & drying up of the puſtles and ulcers, and the ceaſing of the paines and other ſymptomes proper to this diſeaſe. In many, by reaſon of the more denſe and compact habite of the body, nature is more ſlow in excretion. Yet I have learnt by long experience that it is beſt to anoint and chafe ſuch twice in a day, to wit, morning and evening, ſixe houres after meate. For ſo you ſhall profit more in one day, than by the ſingle frictions of three dayes. But on the contrary, I have often, and with good ſucceſſe, rubbed over but each other day more rare and delicate bodies, giving them one or two dayes reſt to recollect their ſtrength, which by the too much diſſolution of their ſpirits becomming too weak, were not ſufficient to expell the relicks of the morbifick matter. And certainly about the end of the appointed friction, eſpecially when as the patients begin to fluxe at the mouth, the bodies, together with the noxious humors are made ſo fluid by the means of the precedent frictions, that one friction is then more efficacious, than two were at the beginning. Therefore as *Galen* bids, when as the diſeaſe is great, and the ſtrength of the patient infirme, that wee ſhould part our blood lettings, and draw a little and a little at once; ſo alſo here when as we ſhall obſerve nature ſtirred up, and ready bent to any kinde of evacuation by the mouth, ſtoole, or other like, you ought not to uſe any unction or friction oftner than once in a day, yea certainely it will bee better to intermit for ſome few dayes. For thus *Maſſa* reports, that there was a certaine man who almoſt waſted with a conſumption, being continually afflicted with the moſt grievous paines of this diſeaſe, & reputed in a deſperate caſe by other phyſitians, was notwithſtanding at length recovered by him, when as hee had anointed him thirty ſeven times, putting ſome time between for the recovery of his ſtrength. I my ſelf have obſerved others, who thus, by the interpoſition of one or two dayes, being rubbed over ſome fifteene or ſeventeene times, have perfectly recovered. Wherefore you muſt take this courſe in reſolved and weake bodies, yet in the interim muſt you have a care, that the frictions bee not too weak, and ſo few, that the morbifick cauſe may not be touched to the quick: for in this kinde of diſeaſe nature doth not of it ſelfe endeavour any Criſis, or excretion; it requires the auxiliary forces of medicines, by whoſe aſſiſtance it may expell all the malignity. Theſe are ſignes of ſuch a Criſis, either at hand, or already preſent, if the patient be ſo reſtleſſe, ſo loath all things, that hee cannot remaine in one place either ſtanding or lying, he can neither eat nor drinke, if he be oppreſſed with a continuall wearineſſe, almoſt ready to ſwoune, yet have a good and equall pulſe, and gripings in his belly afflict him with bloody & viſcous dejections, untill at length nature after one or two dayes, portion of the morbifick matter being ſpent, be ſomwhat

Where to begin the unction.

What it is that maketh the art of Phyſick conjecturall.

Who muſt be rubbed over once, who twice in a day, and who but every other day.

Lib. de venæ ſect.

Nature is not ſufficiently able to expell the virulent matter.

Signes that the criſis is nigh.

freed, and all paines and ſymptomes ſo much abated, as the excretions have proceeded. But whereas medicines are not ſufficient in number or ſtrength, there followes an unperfect *Criſis*, which leaves behind it ſome relicks of the morbifick matter, which like leven do ſo by little & little infect the whole maſs of the humors, that oft-times after ten years ſpace, the diſeaſe riſeth as out of an ambuſh, or lurking hole, and becomes farre worſe than before. But wee muſt in like maner have a care leſt theſe medicines, that are either given inwardly, or applyed outwardly, be not too ſtrong: for by cauſing ſuch colliquation of the radicall moiſture and ſolid parts, many have been brought into an incurable conſumption. In others ſordid and putride ulcers have thence ariſen in the mouth, which having eaten a great part of the pallate and tongue, have degenerated into a deadly *Cancer*. In others hereupon the tongue hath ſo ſwelled up, that it hath filled the whole capacity of the mouth, ſo that it could not be bended to any part of the mouth for chawing, whereupon they have by little and little beene famiſhed. In other ſome there hath beene cauſed ſo great colliquation of humours, that for a whole moneth after, tough and filthy ſlaver hath continually flowed out of their mouths. Other ſome have the muſcles of their jawes relaxed; others troubled with a convulſion, ſo that during the reſt of their lives they can ſcarce gape. Others by loſing a portion of their jaw, have loſt ſome of their teeth. But you muſt not alwaies ſo long anoint and chafe the body, untill a fluxe of the mouth or belly appeare. For you may finde ſundry perſons, who, if you ſhould anoint or rub them to death, you cannot bring them to fluxe at the mouth; yet theſe will recover notwithſtanding, excretion being made either by inſenſible tranſpiration, or evacuation of urine, or ſome gentle fluxe of the belly, either procured by art, or comming of it ſelfe. In which caſe I have obſerved that many have received much good by a purging decoction of *Guajacum*, adminiſtred according to the quantity of the peccant humor, and given for ſome dayes in the morning, adding thereto white wine, if the body abounded with tough and viſcide humours. Dyſenteryes, or bloody fluxes cauſed by unctions, may be helped by Glyſters, wherein much hogs-greaſe is diſſolved to rotund the acrimony cauſed by the medicine and humor which nouriſheth the Dyſentery. Alſo new Treacle diſſolved in new milke, is thought wonderfully to mitigate this ſymptome.

Inconveniences following upon immoderate unctions.

For what perſons a purging decoction of *Guajacum* is good.

The cure of a Dyſentery occaſioned by too ſtrong friction.

Chap. XIII.

Of the third manner of Cure, which is performed by cerates, and emplaſters, as the ſubſtitutes of unctions.

For that ſundry by reaſon of the name, abhorre the uſe of friction, which is performed by the forementioned ointments, therefore there is found out another manner of cure, by cerates and emplaſters, as ſubſtitutes of Frictions, but that uſually is ſomewhat ſlower: for which purpoſe it is not needfull onely to uſe the things which are deſcribed by *Vigo*, but you may alſo deviſe other, which are more or leſſe anodyne, emollient, attenuating, diſcuſſing, or drying, according to the condition of the preſent diſeaſe, ſymptomes, humors and patient, never omitting *Hydrargyrum*, the onely antidote of this diſeaſe. Such emplaſters mitigate paines and knots, and reſolve all hardneſſe, and are abſolutely very effectuall, for continually ſticking to the body, they continually operate. Wherefore they are of prime uſe in relapſes of this diſeaſe, or when the humours are thicke and viſcous, or otherwiſe lye deepe in the body, and very difficult to roote out. But for that they worke more ſlowly oft times, ſuch as uſe them are forced at length to uſe ſome frictions to ſtimulate nature, and cauſe the ſpeedier excretion. Yet in ſome whoſe bodies and humours have beene fluid, either by nature or art, the applyed emplaſters have in three dayes ſpace procured evacuation ſufficient for the diſeaſe, ſo that if they had not beene taken away, they would have cauſed a colliquation, like that which we lately mentioned in too violent friction. Wherefore you ſhall

The cure by emplaſters more ſlow.

In what caſe they are chiefly uſefull.

The deſcription of an emplaſter.

ſhall uſe the like diſcretion in taking off theſe, as you uſe in your unctions and friction. In ſtead of *Emp. de Vigo*, this following may be fitly uſed. ℞. *maſſæ emp. de melil. & oxycrocei, an.* ℔ß. *argenti vivi extin.* ℥ vi. *oleo laurino, & de ſpica, reducantur ad formam emplaſtri.* Theſe plaſters muſt be equally ſpread upon leather, and layd upon the ſame places of the joints, as were formerly mentioned in the cure by frictions. Yet ſome there bee, who cover with the plaſter all the arme, from the hand even to the ſhoulder, and all the legge, from the toppe of the knee, even to the ends of the toes, which thing I doe not diſallow of, if ſo bee that the places of the joints bee covered over with a thicker plaſter. They muſt bee left ſticking there ſo long, untill nature be ſtirred up and provoked to cauſe excretion of the virulent humours. Yet if in the interim, great itching ſhall ariſe in the parts, you may take them off ſo long untill the parts ſhall be fomented with a decoction of the flowres of chamomile, melilote, red roſes, and the like, made in wine, to diſcuſſe that which cauſed the itching, and then you may lay them on againe. Some, to hinder the riſing of any itch, lay not the bare plaſter to the part, but cover it over with ſarcenet, ſo to keepe it from ſticking, and thus intercept the tranſpiration of the part, the cauſe of itching. They ſhall bee ſtronger or weaker, and lye to the part a longer or ſhorter ſpace, as long as the indications, ſo often formerly mentioned, ſhall ſeem to require. The effects of emplaſters are the ſame as of frictions, for they cauſe excretion, one while by inſenſible tranſpiration, otherwhiles by a *Diarrhæa*, or fluxe of the belly; ſometimes by urines, but moſt frequently (which *Criſis* is alſo moſt certaine) by ſalivation. Sordide and virulent ulcers often breed in the mouth, tongue, pallate, and gummes by ſalivation, by reaſon of the acrimony of the virulent humors adhering to the ſides of the mouth: to hinder the growth of theſe, many inject glyſters made of emollient things, eſpecially at the beginning of the ſalivation, ſo to draw downwards the humours forcibly flying up in greater quantity than is fit, although the part it ſelfe may endure them.

What excretion beſt in this diſeaſe.

To avoyd the ulcers of the mouth.

To cure them.

There are alſo ſome, who to the ſame end give a purging medicine at the very time when as the humours are ready to move upwards, the which I thinke is not a ſafe courſe. The cure of ſuch ulcers is farre different from the cure of others. For they ought by no meanes to bee repercuſſed or repelled, how enflamed ſoever they be, but onely to bee mitigated by anodyne gargariſmes, ſo onely to leſſen the heat, and that by this frequent waſhing of the mouth, you may hinder the ſticking or furring of viſcide humours to ſuch like ulcers. A decoction of barly, cowes milk warm, held and gargled in the mouth, the mucilages of the ſeeds of mallowes, marſh-mallowes, *pſilium*, lettuce, line extracted in the water of barly, mallowes, and pellitory of the wall, are good for this purpoſe; for thus the ulcers become more milde, and the tenacity of the adherent humours is looſed. You muſt at the firſt beware of ſtrong detergent medicines, for almoſt all ſuch have acrimony joyned with them, which will encreaſe the pain, but chiefly in the ſtate of the diſeaſe: for ſo, the ulcers gently cleanſed by frequent gargling, would become worſe by the uſe of acride things. Therefore it ſhall be ſufficient to make uſe of the forementioned medicines, ſo to hinder the encreaſe of the filth, and inflammation of the ulcers, if ſo bee that ſuch ulcers be not too exceeding maligne and burning. For if it ſhall happen either by the powerfull efficacy of the applyed plaſters, or by the violence of nature in its motion of the ill humours upwards, that ſuch ſtore of viſcous, and groſſe humours are carryed to the mouth, that it wants little, but that the part it ſelfe is over-ruled by the morbificke matter, ſo that by the violence and continuance of the fluxe, the mouth and jawes become ſo ſwelled, that a gangrene is to be feared, by hindering the entrance of the ſpirits, and extinguiſhing of the native heat of theſe parts. In this caſe wee are forced to leave the proper cure for to withſtand the accidents, and for this purpoſe we uſe reſtrictive & repelling things, ſuch as are barly water, plantain, night-ſhade, knot-graſſe, ſhepheards Purſe, &c. with ſyrupe of roſes, violets, quinces, berberies, pomegranates, &c. alſo ſuch are the mucilages and decoctions of the ſeeds of lettuce, *pſilium*, quinces, plantaine, cucumbers, melons, white poppy, henbane, in the waters of roſes, plantaine, night-ſhade, water-lillies, wood bine, &c. Alſo it is convenient to procure ſweats by ſtoves, or the application of any hot and dry

Reeſtrictive & repelling gargariſmes.

To dry the ulcers of the mouth.

Manner of diet when the mouth is ulcerated.

To make their drinke nouriſhing.

dry things; for thus the humours which run forth of the veſſels into all the ſurface of the body, are diverted. But when as the courſe of the humours running to the mouth, is beginning to ſtoppe, and the tumours and ulcers begin to leſſen, then nothing hinders, but that we may uſe gently detergent things, as *ſyr. roſarum ſiccarum, mel roſatum, Diamoron, Dianucum*, and the like. But when it is time to dry the ulcers, they may be lightly touched with alome water, or with *aqua fortis*, ſuch as goldſmiths have uſed for the ſeparation of mettals. They may alſo frequently uſe drying gargariſmes made with aſtriction of the waters of roſes, plantaine, night-ſhade, ſheepheards purſe, knot graſſe, and dogges tongue, boiling therein *balauſtia, roſ. rub. myrtil. ſumach. alumen. acacia, berber. gallæ, malicor.* and the like. During the time of fluxing or ſalivation you muſt diet and feed the patient with liquid meats, and thoſe of good juice, and eaſie digeſtion, for that then he can neither chaw, ſwallow, nor digeſt hard things. For nature wholly intent upon the excretion of the noxious and peccant humours, as alſo weakened by the bitterneſſe of paine, watchings, and unquietneſſe, and conſequently a great reſolution of the ſpirits, cannot inſiſt powerfully upon the worke of concoction. Therefore he ſhall be fed with reare new layd egges, caudles of the ſame, barly creames, culeſſes made of a decoction of knuckles of veale, and a capon, and gellyes, and with theſe in ſmall quantity, but frequently adminiſtred, alwaies gargling his mouth before hee eate. For his drinke he ſhall uſe a decoction of *Guajacum* aromatized with a little cinamon, but if any deſire that the drinke ſhall become nouriſhment, for that the patients cannot feed on more ſolid meats, you may give them old wine, claret and thinne, mixed with ſome barly water. Some there are who ſteep ſome crummes of pure manchet in the aforeſaid wine, and then preſſe it out, but yet ſo, that there may ſome part of the bread remain therein, which may make it more nouriſhing, and leſſe ſharpe or acride. Others ſteepe bread hot out of the oven, in wine, for the ſpace of a night, then they diſtill it all over in *balneo Mariæ*; the liquor which firſt comes over is more ſtrong and hot, but that which flowes out afterwards, more milde, and ſuch as the patient may uſe to mixe with his wine without any danger, for his better nouriſhment, and the recovery of his ſtrength.

For to refreſh the ſpirits in fear of fainting, Muskedine, Hippocras, roſe vinegar, and the like, put to the noſe to ſmell to, will be ſufficient, unleſſe peradventure the patient ſhould naturally abhorre ſuch things, for ſo they would rather deject the powers and ſpirits. In the interim you muſt have care of the belly, that you keep it open by gentle and emollient glyſters.

Chap. XIIII.

Of the fourth manner of curing the Lues venerea.

The hurt that followes upon fumigations.

What fumigations good.

SOme have deviſed a fourth manner of curing the *Lues venerea*, which is by *ſuffitus* or fumigations. I doe not much approve hereof, by reaſon of ſundry maligne ſymptomes which thence ariſe, for they infect and corrupt by their venemous contagion, the braine and lungs, by whom they are primarily and fully received, whence the patients during the reſidue of their lives have ſtinking breaths. Yea many while they have beene thus handled, have beene taken hold of by a convulſion, and a trembling of their heads, hands, & legges, with a deafeneſſe, apoplexie, and laſtly miſerable death, by reaſon of the maligne vapours of ſulphur and quickſilver, whereof *cinnabaris* conſiſts, drawne in by their mouth, noſe, and all the reſt of the body. Wherefore I can never approve the uſe of ſuch fumigations which are to bee received in fumes by the mouth and noſtrills for to work upon the whole body; yet I doe not diſlike of that, which is undertaken for ſome one part onely, as to dry up ill conditioned ulcers, which ſo affect it, that they cannot bee overcome by any other meanes, or for to diſperſe or digeſt knots, or to reſolve fixed paines, otherwiſe unmoveable. Theſe fumigations by reaſon of the admixture of *Argentum vivum* have an attenuating, cutting, reſolving, and colliquating faculty. Thoſe who prepare theſe fumigations for the cure of the whole diſeaſe and body, take this courſe. They put the patient under a tent or canopy made cloſe on every ſide, leſt any thing ſhould expire, and they put in unto him a veſſell filled with hot coales, whereupon they plentifully throw *Cinnabaris*, that ſo they may on every ſide enjoy the riſing fume, juſt after the ſame manner as Farriers uſe to ſmoake their horſes for the glaunders: they repeat this every day ſo long, untill they begin to fluxe at the mouth. The principall matter or *baſis* of ſuch fumigations, as we have already noted, is *cinnabaris* conſiſting of *ſulphur* and *argentum vivum* mixed together; there is added alſo, *radix ireos flor. thus, olibanum, myrrha, juncus odoratus, aſſa odorata, maſtiche, terebinthina, & theriaca,* all which have a faculty to reſolve and ſtrengthen the ſpirits, and nature, and correct the ſtench and evill quality of the *argentum vivum*. There are alſo other fumigations made after another manner, but that alſo when as the *argentum vivum* is extinct, and as it were fixt after this manner; let ſome lead bee melted, and let there be powred or put thereto ſome *argentum vivum*, then let it all be poudred, adding thereto Antimony, Aloes, Maſtich, coproſe, orpiment, and Benjamin made into pouder, and framed into Trochiſces with ſome turpentine. Or elſe, ℞. *cinnabaris*, ℥ i. *ſtyracis rub. & calamitæ, nucis moſchat. an.* ʒ iii. *benzoini*, ℥ ß. *excipe terebinthin. fiant trochiſci ponderis* ʒ ii. for the foreſaid uſe. The *terebinthina* is added to incorporate the dry things, and the gums are added to yeild matter to the fume. But virulent ulcers of the *Lues venerea* ſhall not be fumigated before they be cleanſed; alſo this following fumigation is good. ℞. *cinnabaris*, ℥ i. *benzoini, myrrhæ, ſtyracis, olibani, opopanacis, an.* ℥ ß. *maſtiches, macis, thuris, an.* ʒ ii. *excipiantur terebinthina, & fiat ſuffumigium.*

The common manner of uſing them.

The matter of them.

Trochiſces for fumigations.

CHAP. XV.

The cure of the ſymptomes, or ſymptomaticke affects of the Lues venerea, *and firſt of the Ulcers of the Yard.*

Callous and maligne ulcers in this diſeaſe may grow all over the yard; but theſe are far more maligne which ariſe on the prepuce, than thoſe that grow on the *Glans*, or nut of the yard. Now they are rebellious to the common medicines of ulcers which happen other waies, & they are alſo ſubject to turne into a gangrene, ſo that ſundry, who have not in time provided for themſelves by the uſe of *argentum vivum*, are forced for their negligence to ſuffer the loſſe of their *Glans*, and oft times of their whole yard. Yet I am of opinion that I thinke we muſt begin the cure of all ulcers of the yard with the generall remedies of ulcers. For all ulcers ariſing in theſe parts by reaſon of copulation, are not virulent. But when as we ſhall finde that we doe no good by this meanes, and that the diſeaſe notwithſtanding growes worſe and worſe, then muſt we come to make uſe of ſuch things as receive *argentum vivum*, that by theſe we may reſiſt the virulency which is ready to diſperſe it ſelfe over all the body, yet it is abſolutely neceſſary that all theſe things be endued with ſuch faculties as may retund the maligne acrimony of this venome, ſuch an one is this following *collyrium* of *Lanfranck*. ℞. *vini albi*, ℔ i. *aq. roſ. & plantag. an.* quart. i. *auripig.* ʒ ii. *viridis æris*, ʒ i. *aloes, myrrhæ, an.* ℈ ii. *terantur ſubtiliſsime, & fiat collyrium.* Alſo theſe ulcers may bee profitably touched with mercury water, or *aqua fortis* which the Goldſmiths have uſed, or elſe mercury in pouder, or our *ægyptiacum*: but the falling away of the Eſchar ſhall bee procured with *baſilicon*, or freſh butter. Yet I think it not fit to uſe theſe acrid things without very great caution, for fear of a gangrene, which eaſily happens to this part. But if ſuch ulcers are ſo ſtubborne, that they will not yeild to theſe remedies, then muſt we come to the friction or unction of the groines, *perinæum*, and ulcers, with the ointments formerly preſcribed for the generall friction. Alſo fumigations may bee made, as wee mentioned in the former chapter. For thus at length the malignity of the virulent humour will be overcome, and the callous hardneſſe mollified; and laſtly

The ulcers of the prepuce more maligne than thoſe of the *Glans*.

Lanfranckes *Collyrium*.

ly the ulcers themſelves cleanſed, and being cleanſed, conſolidated. Sometimes after the perfect cure of ſuch ulcers, there will appeare manifeſt ſignes of the *Lues venerea* in many, which ſhewed not themſelves before, for that the virulency flowed forth of the running ulcers, and now this vent being ſtopt, it flowes backe into the body, and ſhewes ſignes thereof in other parts; and theſe men have need of a generall unction.

Chap. XVI.

How a Gonnorhœa *differeth from a * virulent ſtrangury.*

* This which by our Author is here termed *ſtranguria virulenta*, & in Frēch *Chaudepiſſe*, is the ſame which by other Authors is uſually termed *Gonnorrhœa virulenta*, & by us vulgarly in Engliſh the running of the Reines.

EVen to this day very many have thought that the virulent ſtrangury hath ſome affinity with the *Gonnorhœa* of the Ancients, but you ſhall underſtand by that which followes, that they are much different. For a *Gonnorhœa* is an unvoluntary effuſion of ſeed running from the whole body to the genitals, by reaſon of the reſolution and palſey of the retentive faculty of theſe parts, as it is delivered by *Galen, lib. de loc. affect.* This diſeaſe befalleth others by the collection of the bloud and ſeminall matter by the veſſels of the whole body, which not turning into fat and good fleſh, takes its courſe to the genitals; but on the contrary, a virulent ſtrangury is a runnning, or rather dropping out of the urenary paſſage, of a yellowiſh, livide, bloudy, filthy *ſanies*, like to *pus* or matter not well concocted, oftentimes fretting and exulcerating the paſſage with the acrimony, and cauſing a painefull erection of the yard, and diſtenſion of all the genitall parts. For in this erection there is cauſed as it were a convulſive contraction of theſe parts. And hence it is that the patients complaine, that they feele as it were a ſtring ſtretched ſtiffe in that part, which drawes the yard as it were downewards. The cauſe hereof is a groſſe and flatulent ſpirit, filling and diſtending by its plenty, the whole channell or hollow nerve; yea, verily, the whole porous ſubſtance of the yard. If to theſe ſymptomes this be added, that the urenary paſſage be exulcerated, a grievous paine afflicts the patient whileſt he makes water, for that the ulcers are irritated by the ſharpe urine paſſing that way. Such a virulent ſtrangury or running of the reines oft-times continueth for two or three yeares ſpace: but the *Gonnorhœa*, or running of the ſeed cannot endure ſo long, but that it will bring the body to an extreme and deadly leanneſſe, for that the matter of the ſeed is of the more benigne and laudible portion of the bloud, as you may perceive by thoſe who have too immoderately uſed copulation but the ſpace of one night. For ſuch have their faces more leane and lanke, and the reſt of their bodies enervated, languiſheth and becommeth dull. By this we have delivered, it may be perceived that the running of a virulent ſtrangury, is not the running of a ſeminall humour, fit for generation of iſſue, but rather of a viſcous and acride filth, which hath acquired a venenate malignity by the corruption of the whole ſubſtance.

What a virulent ſtrangury is.

The cauſe of the convulſive diſtenſion of the yard.

Vid. Auth. definit. med. apud Galen.

What kind of matter floweth forth in a virulent ſtrangury.

Chap. XVII.

Of the cauſes and differences of the ſcalding, or ſharpeneſſe of the urine.

The cauſe of a particular repletion of the privie parts.

THe heat or ſcalding of the water, which is one kinde of the virulent ſtrangury, ariſeth from ſome one of theſe three cauſes, to wit, repletion, inanition and contagion. That which proceeds from repletion, proceeds either from too great abundance of bloud, or by a painefull and tedious journey in the hot ſunne, or by feeding upon hot, acride, diureticke and flatulent meats, cauſing tenſion and heat in the urenary parts, whence proceeds the inflammation of them and the genitall parts, whence it happens that not onely a ſeminall, but alſo much other moiſture may flow unto theſe parts, but principally to the *proſtata*, which are glandules ſituate at the roots, or beginning of the necke of the bladder, in which place the ſpermaticke veſſels end; alſo abſtinence from venery cauſeth this plenitude in ſome who have uſually had to doe with women, eſpecially the expulſive faculty of the ſeminall and urenary parts being weake, ſo that they are not of themſelves able to free themſelves from this burden. For then the ſuppreſſed matter is corrupted, and by its acrimony contracted, by an adventitious and putredinous heat, it cauſeth heate and paine in the paſſage forth. The *proſtata* ſwelling with ſuch inflamed matter, in proceſſe of time become ulcerated, the abſceſſe being broken. The purulent *ſanies* dropping and flowing hence alongſt the urinary paſſage cauſes ulcers by the acrimonie, which the urine falling upon, exaſperates, whence ſharpe paine, which alſo continueth for ſome ſhort time after making of water, and together therewith by reaſon of the inflammation, the paines attraction, and the vaporous ſpirits diſtenſion, the yard ſtands and is contracted with paine, as wee noted in the former chapter. But that which happens through inanition, is acquired by the immoderate and unfit uſe of venery, for hereby the oily and radicall moiſture of the forementioned glandules is exhauſted, which waſted and ſpent, the urine cannot but be troubleſome and ſharpe by the way to the whole *urethra*. From which ſenſe of ſharpe paine, the ſcalding of the urine hath its denomination. That which comes by contagion, is cauſed by impure copulation with an unclean perſon, or with a woman, which ſome ſhort while before hath received the tainted ſeed of a virulent perſon, or elſe hath the whites, or her privities troubled with hidden and ſecret ulcers, or carrieth a virulent ſpirit ſhut up or hidden there, which heated and reſuſcitated by copulation, preſently infects the whole body with the like contagion, no otherwiſe than the ſting of a Scorpion or *Phalangium*, by caſting a little poiſon into the ſkinne, preſently infects the whole body, the force of the poiſon ſpreading further than one would believe, ſo that the partie falls downe dead in a ſhort while after. Thus therefore the ſeminall humour conteined in the *proſtatæ*, is corrupted by the tainture of the ill drawne thence by the yard, and the contagion infects the part it ſelfe; whence followes an abceſſe, which caſting forth the virulency by the urenary paſſage, cauſeth a virulent ſtrangury; and the maligne vapour carryed up with ſome portion of the humour unto the entrailes and principall parts, cauſe the *Lues venerea*.

The cauſes of the inanition of the genitall parts.

The reaſon of a contagious ſtrangury.

Chap. XVIII.

Prognoſticks in a virulent ſtrangury.

WEE ought not to be negligent or careleſſe in curing this affect, for of it proceed pernicious accidents, as wee have formerly told you, and neglected, it becomes uncurable, ſo that ſome have it run out of their urenary paſſage during their lives; oft-times to their former miſery is added a ſuppreſſion of the urine, the *proſtata* and neck of the bladder being inflamed and unmeaſurably ſwelled. Copulation, and the uſe of acride or flatulent meates encreaſe this inflammation, and alſo together therewith cauſe an *Iſchuria*, or ſtoppage of the urine; they are worſe at the change of the moone: certaine death followes upon ſuch a ſtoppage; as I obſerved in a certaine man, who troubled for ten yeares ſpace with a virulent ſtrangury, at length dyed by the ſtoppage of his water. He uſed to be taken with a ſtopping of his urine, as often as he uſed any violent exerciſe, and then he helped himſelf by putting up a ſilver Catheter, which for that purpoſe he ſtill carryed about him; it happened on a certaine time, that he could not thruſt it up into his bladder, wherefore he ſent for me, that I might helpe him to make water, for which purpoſe when I had uſed all my skill, it proved in vaine: when he was dead, and his body opened, his bladder was found full and very much diſtended with urine, but the *proſtata* preternaturally ſwelled, ulcerated, and full of matter reſembling that, which formerly uſed to run out of his yard, whereby you may gather, that this virulency flowes from the *proſtata*, which runs forth of the yard in a virulent ſtrangury, and not from the

A virulent ſtrangurie continues with ſome during their lives.

A hiſtory.

From what part the matter of a virulent ſtrangury flowes.

Reines, as many have imagined. Certainely, a virulent ſtrangury, if it be of any long continuance, is to be judged a certaine particular *Lues venerea*, ſo that it cannot bee cured unleſſe by frictions with *Hydrargyrum*. But the ulcers which poſſeſſe the neck of the bladder are eaſily diſcerned from theſe which are in the body or capacity thereof. For in the latter the filth comes away as the patient makes water, and is found mixed with the urine, with certaine ſtrings or membranous bodies comming forth in the urine: to theſe may be added, the farre greater ſtinch of this filth which iſſueth out of the capacity of the bladder. Now muſt wee treat of the cure of both theſe diſeaſes, that is, the *Gonnorhœa* and virulent ſtrangury, but firſt of the former.

Chap. XIX.

The chiefe heads of curing a Gonnorhœa.

Diet.

For a ſtrangury occaſioned by repletion.

For the decay of the retentive faculty.

Let a Phyſitian be called, who may give direction for purging, bleeding and diet, if the affect proceed from a fulneſſe and abundance of blood and ſeminall matter; all things ſhall bee ſhunned which breed more bloud in the body, which increaſe ſeed, and ſtirre to venery. Wherefore he muſt abſtaine from wine, unleſſe it be weak and aſtringent, and he muſt not onely eſchew familiarity with women, but their very pictures, and all things which may call them into his remembrance, eſpecially if he love them dearly; ſtrong exerciſes do good, as the carrying of heavie burdens even until they ſweat, ſwimming in cold water, little ſleepe, refrigerations of the loines and genitall parts by annoynting them with *unguentum roſatum refrigerans Galeni & nutritum*, putting thereupon a double cloth ſteeped in oxycrate, and often renewed. But if the reſolution or weakneſſe of the retentive faculty of theſe parts bee the cauſe of this diſeaſe, contracted by too much uſe of venery before they arrive at an age fit to performe ſuch exerciſe; in this caſe ſtrengthening and aſtringent things muſt both bee taken inwardly, and applied outwardly. But now I haſten to treat of the virulent ſtrangurie, which is more proper to my purpoſe.

Chap. XX.

The generall cure both of the ſcalding of the water, and the virulent ſtrangury.

Diet.

Wee muſt diverſly order the cure of this diſeaſe, according to the variety of the cauſes and accidents thereof. Firſt, care muſt be had of the diet, and all ſuch things ſhunned as inflame the bloud, or cauſe windineſſe; of which nature are all diuretick and flatulent things, as alſo ſtrong and violent exerciſes. Purging and bleeding are convenient, eſpecially, if fulneſſe cauſe the affect. Womens companies muſt be ſhunned and thoughts of venereous matters; the patient ought not to lye upon a ſoft bed, but upon a quilt or matterice, and never, if he can helpe it, upon his back; boyled meats are better than roaſted, eſpecially boyld with ſorrel, lettuce, purſlain, cleanſed barly, & the four cold ſeeds beaten, for ſauce, let him uſe none, unleſſe the juice of an orange, pomgranate, or verjuice; let him ſhun wine, and in ſtead thereof uſe a decoction of barly and liquerice, a *hydromel*, or *hydroſaccharum* with a little cinamon, or that which is termed *Potus divinus*. In the morning let him ſup of a barly creame wherein hath beene boyled a *nodulus* of the foure cold ſeedes beaten together with the ſeedes of white poppy; for thus it refrigerateth, mitigateth and cleanſeth; alſo the ſyrups of marſhmallowes and maiden-haire are good. Alſo purging the belly with halfe an ounce of *Caſsia*, ſometimes alone, otherwhiles with a dram or halfe a dram of Rubarbe in pouder put thereto, is good. And theſe following pils are alſo convenient.

Pills.

℞. *maſſa pilul. ſine quibus* ℈i. *rhei electi* ʒß. *caphuræ gr.* iiii. *cum terebinthina formentur pilulæ*; let them bee taken after the firſt ſleep. Venice turpentine alone, or adding thereto

The force of Venice turpentine in this diſeaſe.

ſome Rubarbe in pouder, with oyle of ſweet almonds newly drawne without fire, or ſome ſyrupe of maiden-hair is a ſingular medicine in this caſe, for it hath an excellent lenitive and cleanſing faculty, as alſo to helpe forwards the expulſive facultie, to caſt forth the virulent matter contained in the *proſtatæ*. You may by the bitterneſſe perceive how it reſiſts putrefaction and you may gather how it performes its office in the reines and urenary parts, by the ſmell it leaves in the urine after the uſe thereof. But if there bee any who cannot take it in forme of a bole, you may eaſily make it potable, by diſſolving it in a mortar with the yolk of an egge and ſome white wine, as I learned of a certaine Apothecary, who kept it as a great ſecret. If the diſeaſe come by inanition or emptineſſe, it ſhall be helped by fatty injections, oily and emollient potions, and inwardly taking and applying theſe things which have the like faculty, and ſhunning theſe things which cauſed the diſeaſe. How to cure that which happens by contagion or unpure copulation, it ſhall bee abundantly ſhewed in the enſuing chapter.

How to bee made potable.

CHAP. XXI.

The proper cure of a virulent ſtrangury.

An injection to ſtay inflammation.

FIRST we muſt begin with the mitigation of paine, and ſtaying the inflammation, which ſhall be performed by making injection into the *urethra* with this following decoction warme. ℞. *ſem. pſilii, lactucæ, papav. albi, plantag. cydon. lini, hyoſciami albi, an.* ʒ ii. *detrahantur mucores in aquis ſolani & roſar. ad quantitatem ſufficientem, adde trochiſc. alborum Rhaſis camphoratorum in pollinem redactorum,* ʒ i. *miſce ſimul, & fiat injectio frequens.* For this becauſe it hath a refrigerating faculty, will help the inflammation, mitigate pain, and by the mucilaginous faculty lenifie the roughneſſe of the *urethra*, and defend it by covering it with the ſlimy ſubſtance, againſt the acrimony of the urine and virulent humours. In ſtead hereof you may uſe cowes milk newly milked, or warmed at the fire. Milk doth not only conduce hereto being thus injected, but alſo drunk, for it hath a refrigerating and cleanſing faculty and by the ſubtlety of the parts it quickly arrives at the urenary paſſages. Furthermore it will be good to anoint with *cerat. refriger. Galeni addita camphora*, or with *ceratum ſantalinum, ung. comitiſſæ*, or *nutritum*, upon the region of the kidneyes, loines and *perinæum*, as alſo to anoint the Cods and Yard. But before you uſe the foreſaid ointments or the like, let them be melted over the fire, but have a care that you make them not too hot, leſt they ſhould loſe their refrigerating quality, which is the thing we chiefly deſire in them. Having uſed the foreſaid ointment, it will be convenient to apply thereupon ſome linnen clothes moiſtened in oxycrate compoſed *ex aquis plantaginis, ſolani, ſempervivi, roſarum*, and the like.

The faculties of milke againſt a virulent ſtrangury.

How to make water without paine.

If the patient bee tormented with intollerable paine in making water, and alſo ſome ſmall time after, as it commonly commeth to paſſe, I would wiſh him that he ſhould make water putting his yard into a chamber-pot filled with milke or water warmed. The paine by this meanes being aſſwaged, we muſt come to the cleanſing of the ulcers by this or the like injection. ℞. *hydromelitis ſymp.* ℥ iv. *ſyr. de roſis ſiccis, & de abſinth. an.* ℥ ß. *fiat injectio.* But if there be need of more powerfull deterſion, you may ſafely adde, as I have frequently tryed, a little *ægyptiacum*. I have alſo found this following decoction to bee very good for this purpoſe. ℞. *vini albi oderiferi,* ℔ ß. *aquar. plantag. & roſ. an.* ℥ ii. *auripigmenti,* ʒ ß. *viridis æris,* ℈ i. *aloës opt.* ʒ ß. *pulveriſentur pulveriſanda, & bulliant ſimul.* Keep the decoction for to make injection withall. You may encreaſe or diminiſh the quantity and force of the ingredients entring into this compoſition, as the patient and diſeaſe ſhall ſeeme to require. The ulcers being thus cleanſed, we muſt haſten to dry them, ſo that we may at length cicatrize them. This may be done by drying up the ſuperfluous moiſture, and ſtrengthening the parts that are moiſtened and relaxed by the continuall defluxion, for which purpoſe

Detergent injections.

How the cleanſed ulcers may be dryed.

poſe this following decoction is very profitable. ℞. *aq. fabrorum*, ℔ i. *pſidiarum, balauſt. nucum expreſ. conquaſſatorum, an.* ʒ i ß. *ſemin. ſumach. & berber. an.* ʒ ii. *ſyrup. roſar. & de abſinth. an.* ℥ i. *fiat decoctio.* You may keepe it for an injection to be often injected into the *urethra* with a ſyringe, ſo long as that there ſhall no matter or filth flow out thereat, for then there is certaine hope of the cure.

CHAP. XXII.

Of Caruncles, or fleſhy exereſcences which ſometimes happen to grow in the Urethra, *by the heat or ſcalding of the urine.*

How caruncles come to grow upon the ulcers of the genitall parts.

A Sharpe humour which flowes from the Glandules termed *Proſtatæ*, and continually runs alongſt the urenary paſſage, in ſome places by the way it frets, and exulcerates by the acrimony the *urethra* in men, but the necke of the wombe in women. In theſe, as alſo is uſuall in other ulcers, there ſometimes growes up a ſuperfluous fleſh, which oft times hinders the caſting or comming forth of the ſeed & urine by their appropriate and common paſſage, whence many miſchieves ariſe; whence it is that ſuch ulcers as have caruncles growing upon them muſt be diligently cured. But firſt we muſt know whether they be new or old. For the latter are more difficultly to bee cured than the former, becauſe the caruncles that grow upon them become callous and hard, being oft times cicatrized. Wee know that there are caruncles, if the *Cathater* cannot freely paſſe alongſt the paſſage of the urine, but findes ſo many ſtops in the way, as it meets with Caruncles that ſtop the paſſage; if the patient can hardly make water, or if his water runne in a very ſmall ſtreame, or two ſtreames, or crookedly, or onely by droppe and droppe, with ſuch tormenting paine that he is ready to let goe his excrements, yea and oft times doth ſo, after the ſame manner as ſuch as are troubled with the ſtone in the bladder. After making water, as alſo after copulation, ſome portion of the urine and ſeed ſtayes at the rough places of the caruncles, ſo that the patient is forced to preſſe his yard, to preſſe forth ſuch reliques. Sometimes the urine is wholly ſtopped, whence proceeds ſuch diſtention of the bladder, that it cauſeth inflammation, and the urine flowing backe into the body, haſtens the death of the patient. Yet ſometimes the urine thus ſuppreſt, ſweats forth preternaturally in ſundry places, as at the fundament, *perinæum*, cod, yard, groines. As ſoone as we, by any of the forementioned ſignes, ſhall ſuſpect that there is a Caruncle about to grow, it is expedient forthwith to uſe means for the cure therof; for a caruncle from a very little beginning doth in a ſhort time grow ſo bigge, that at the length it becomes incureable, verily you may eaſily gheſſe at the difficulty of the cure by that we have formerly delivered of the eſſence hereof, beſides, medicines can very hardly arrive thereat. The fitteſt ſeaſon for the undertaking thereof is the ſpring, and the next thereto is winter; yet if it be very troubleſome, you muſt delay no time. Whileſt the cure is in hand, the patient ought wholly to abſtain from venery, for by the uſe thereof, the kidneyes, ſpermaticke veſſels, *proſtata*, and the whole yard, ſwell up and waxe hot, and conſequently draw to them from the neighbouring and upper parts, whence aboundance of excrements in the affected parts, much hindering the cure. You muſt beware of acrid and corroding things in the uſe of detergent injections, for that thus the *urethra* being endued with moſt exquiſite ſenſe, may bee eaſily offended, whence might enſue many and ill accidents. Neither muſt wee be frighted if at ſome times wee ſee blood flow forth of ſecret or hidden caruncles. For this helpes to ſhorten the cure, becauſe the diſeaſe is hindered from growth, by taking away portion of the conjunct matter, the part alſo it ſelfe is eaſed from the oppreſſing burden, for the materiall cauſe of caruncles is ſuperfluous blood. Wherfore unleſſe ſuch bleeding happen of it ſelfe, it is not amiſſe to procure it by thruſting in a *Cathater* ſomewhat hard, yet with good adviſe. If the Caruncles be inveterate, and callous, then muſt they be mollified by fomentations, ointments, cataplaſmes, plaſters, and fumigations; you may thus a make fomentation. ℞. *rad. alth. & lilior. alb. an.* ℥ iv. *rad. bryoniæ, & fænicul.*

Callous caruncles hard to cure.

Signes.

The ſuppreſt urine comes forth whereas it can get vent.

The fitteſt time for the cure. Why venery muſt bee eſchewed.

The particular cure.

A fomentation.

nicul. an. ℥ i ß. *fol. malvar. violarum, parietar. & mercur. an.* m ß. *ſem. lini, fænugr. an.* ℥ ß. *caricas ping.* nu.xii. *florum chamæm. & melil. an.* p i. *contundantur contu denda, & incidenda incidantur, bulliant omnia in aqua communi*: make a fomentation, and apply it with ſoft ſponges. Of the maſſe of the ſtrained-out things, you may make a cataplaſme after this manner. ℞. *prædicta materialia, terantur, & trajiciantur, adde axungia porci, unguenti baſiliconis, an.* ℥ ii. *fiat cataplaſma*: let it be applyed preſently after the fomentation. You may uſe this following liniment whileſt the cataplaſme is providing. ℞. *unguenti alth. & agrippæ an.* ℥ i ß *æſipi humida, & axung. human. an.* ℥ i. *butyri recentis, olei lilior. & chamæm. an.* ʒ vi. *liqueſiant ſimul, addendo aqua vitæ* ℥ i. *fiat linimentum*: let it bee applyed outwardly upon the part wherein the Caruncles are. For the ſame purpoſe plaſters ſhall bee applyed, which may bee diverſified, and fitted as you ſhall thinke good; yet *Emplaſtrum de Vigo* truly made, exceedeth all the reſt in a mollifying faculty, and in waſting ſuch callous hardneſſe. The following fumigation is alſo good for the ſame purpoſe; take ſome pieces of a mille-ſtone (for this wee uſe in ſtead of the *pyrites* mentioned by the Ancients) or elſe ſome Brickes of a large ſize, after they are heated hot in the fire, let them be put into a pan, and ſet under a cloſe ſtoole, then cauſe the patient to ſit thereon, as if hee were going to ſtoole, then poure upon the hot ſtones equall parts of very ſharpe vinegar, and very good *Aqua vitæ*, and caſting clothes about him, that nothing may exhale in vaine: let him receive the aſcending vapour at his Fundament, *Perinæum*, *Scrotum*, and *Urethra*. Moreover, that this medicine may worke the better effect, you may put the Patient naked into the Barrell noted with this letter A. ſo that he may ſit upon a ſeate or borde perforated on that part, whereas his Genitalls are, then place the pan holding the hot ſtones between his legges, then preſently ſprinkle the ſtones with the forementioned liquor, by the doore marked with the letter, B. Thus the Patient ſhall eaſily receive the fume that exhales therefrom, and none thereof bee loſt, he covering and vailing himſelfe on every ſide. Such a fumigation, in *Galens* opinion, hath a faculty to penetrate, cut, reſolve, ſoften and digeſt ſcirrhous hardneſſes.

A cataplaſme.

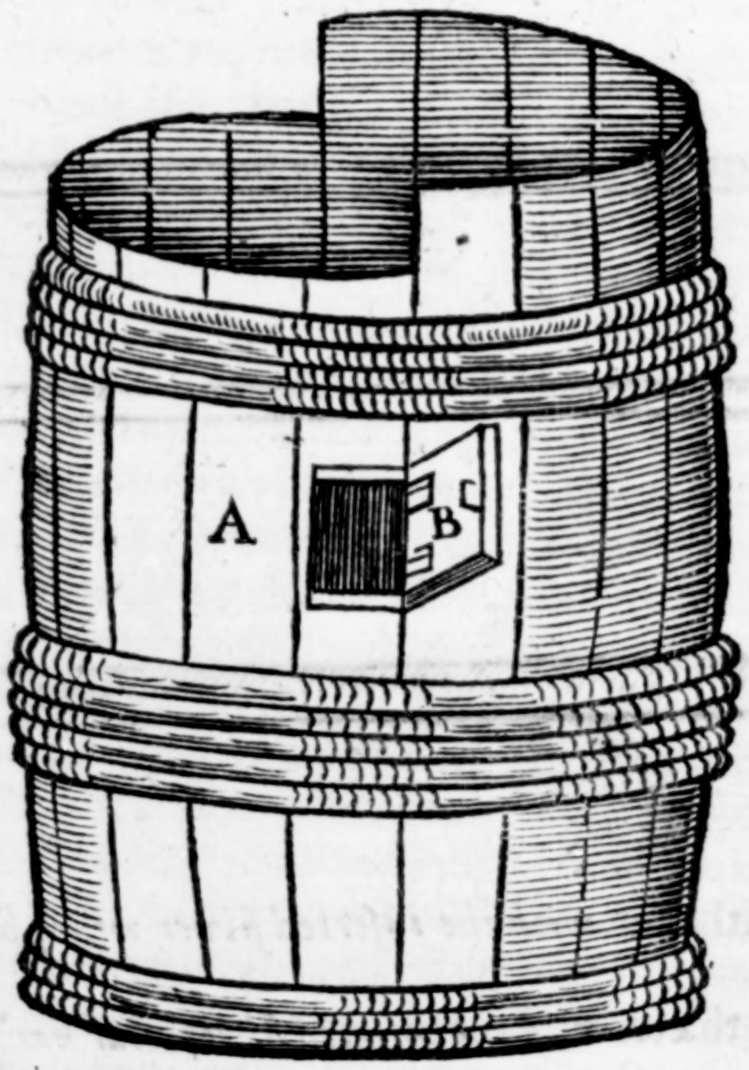
A liniment.

Vigoes emplaſter effectuall to ſoften a caruncle.

A *ſuffumigium*.

Ad Glauc. lib. 2. *cap.* 5.

A Barrell fitted to receive the Fume in.



CHAP.

Chap. XXIII.

What other remedies ſhall be uſed to Caruncles occaſioned by the Lues venerea.

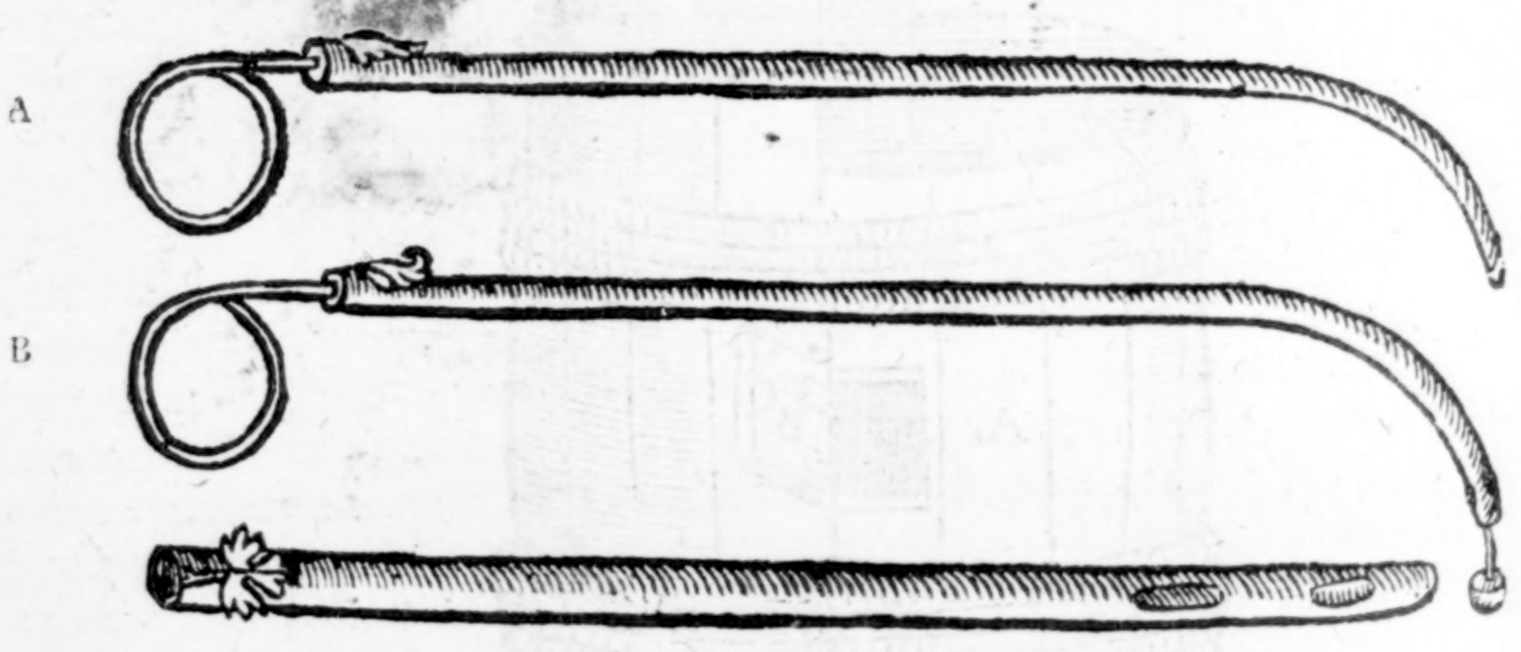
Particular deſaults of the *Lues venerea* not to be cured unleſſe by the generall remedy of the virulency.

BUT if you ſuſpect that theſe Caruncles come or are occaſioned by a virulent humour, or the malignity of the *Lues venerea*, it is meet that the patient obſerve ſuch a diet as uſually is preſcribed to ſuch as are troubled with the *Lues venerea*; let him uſe a decoction of *Guajacum*, and let the *perinæum* and the whole yard bee anointed with ointment made for the *Lues venerea*; otherwiſe the Surgion will loſe his labour. In the interim whileſt hee ſhall ſweat in his bed, he ſhall bee wiſhed to hold betweene his legges a ſtone bottle filled with hot water, or elſe a hot bricke wrapped in linnen cloathes, moiſtened in vinegar and *aqua vitæ*; for thus the heat and vapour will aſcend to the genitalls, which, together with the helpe of the applyed ointment, will diſſolve the matter of the Caruncles, and being thus ſoftened, they muſt be conſumed with convenient medicines.

Caruncles if callous, muſt firſt be ſoftened.

Wherefore firſt if they become callous, or cicatrized (which you may ſuſpect if they caſt forth no excrementitious humidity) they ſhall be exaſperated, excoriated and torne with a leaden *Cathæter* having a rough button at the end like a round file. He ſhall ſo long uſe the *Cathæter* put into the *Urethra*, thruſting it up and downe the ſame way ſo long and often as hee ſhall thinke fit for the breaking and tearing the Caruncles, hee ſhall permit them thus torne to bleed freely, ſo to eaſe the affected part. You may alſo for the ſame purpoſe put into the *Urethra* the *Cathæter* marked with this letter B. whereinto putting a ſilver wiar ſharp at the upper end, that by often thruſting it in and out, it may wear and make plain the reſiſting caruncles. Verily by this meanes I have helped many much perplexed with the teare-full danger of this diſeaſe. Some better like of the *Cathæter* marked with the letter A. being thus uſed: it is thruſt into the *Urethra* with the prominent cutting ſides downewards, and then preſſing the yard on the outſide cloſe with your hand to the *Cathæter* in the place where the Caruncles are, it is drawn forth againe.

Cathæters fit to weare aſunder, or teare Caruncles.



A. *ſheweth the* Cathæter *with the inſerted ſilver wiar, but not hanging forth thereat.*

B. *ſheweth the* Cathæter *with the inſerted ſilver wiar hanging forth at the end.*

A pouder to waſte caruncles.

The thus torne Caruncle ſhall bee ſtrawed over with the following pouder, being very effectuall to waſte and conſume all Caruncles of the privities without much paine. ℞. *herb. ſabin. in umbra exſiccat.* ʒ ii. *ocræ, antimon. tuth. præparat. an.* ʒ ß. *fiat pulv. ſubtiliſſimus*, let it bee applyed in the following manner. Put the powder into the pipe or *Cathater* having holes in the ſides thereof, the which is the lowermoſt of the laſt deſcribed. Then put the *Cathater* into the urenary paſſage untill the ſlit or opennеſſe of the ſide come to the Caruncle, then into the hollowneſſe of the *Cathater* put a ſilver wiar, wrapped about the end with a little linnen ragge, which as it is thruſt up, will alſo thruſt up the pouder therwith, untill it ſhall come to the ſlit againſt the caruncle, then will it adhere to the caruncle, bloody by reaſon of the late attrition. Then ſhall you draw forth the *Cathater*, firſt twining it about, that ſo it may not ſcrape off the pouder againe. If intollerable paine hereupon happen, it ſhall bee aſſwaged, and the inflammation reſtrained by the following injection. ℞. *ſuccorum portulacæ, plantag. ſolani, & ſempervivi, an.* ℥ ß. *album ovorum,* nu. vi. *agitentur diu in mortario plumbeo*; let it be injected warme into the *urethra* with a ſyringe. In ſtead hereof you may alſo make uſe of another injection, which is formerly preſcribed. Neither will it be unprofitable to apply repercuſſives to the genitalls, to hinder pain and inflammation. You may alſo uſe other medicines, having a faculty to conſume the Caruncle, amongſt which theſe following are excellent. ℞. *viridis æris, auripigmenti, vitriol. Rom. aluminis roch. an.* ℥ ii. *infundantur omnia in acet. acerrimo, atque inter duo marmora in pollinem redigantur*: then let it be expoſed to the ſummer ſunne, and dryed, againe infuſed in ſharp vinegar, and then as before grownd upon a marble, ſo that you ſhall finde nothing ſharpe with your fingers; laſtly let it be oppoſed to the ſunne untill it may bee made into moſt ſubtle pouder, and all the acrimony be vaniſhed, which will be commonly in eight dayes ſpace. Then, ℞. *ol. roſat.* ℥ iv. *lythargyri* ℥ ii *coquantur ad ignem, quouſque coïerint in emplaſt. ſolidæ conſiſtentiæ, ab igne tum ſemotis, adde pulv. prædict.* ℥ ii. let them bee mixed with a ſpatula, and put upon the fire untill it come to ſo hard a conſiſtence, that it will ſticke to a waxe candle, or lead wiar, ſo that it may not come off by handling with your hands. The Surgeons of *Montpelier*, uſe this medicine: This following is another, ℞. *tuthiæ præpar.* ʒ vi. *antimonii*, ʒ iii. *trochiſc. alborum, Rhaſ. camphorat.* ʒ i. *corticis granati, aluminis uſti, an.* ʒ i ß. *ſpongiæ uſtæ,* ℈ ii. let them all be made into pouder: then, ℞. *ung. diapompholigos, & alb. Rhaſis, an.* ℥ ii. *miſceantur cum prædictis pulveribus in mortario plumbeo, & diu agitentur*: let a very fine ragge bee ſpread over with this ointment, and wrapped about a waxe candle, and ſo thruſt into the *Urethra*, and then draw forth the candle againe by twining it a contrary way; ſo let the end of the ragge hang out of the yard, ſo to plucke it forth againe, when as you ſhall thinke it hath done what it can to the Caruncle, which is, when it hath covered it with the medicine with which it was ſpread. Some alſo make waxe candles with a ſlender, but ſtiffe weeke, whoſe end, which is to be put to weare and conſume the Caruncle, is compoſed of the following medicine. ℞. *emplaſtri nigri, vel diachylonis treati* ℥ ii. *pul. ſabinæ, ocræ, vitriol. Rom. calcin. pul. mer. an.* ʒ ß. *omnia liqueſcant ſimul ad dictum uſum.* Whileſt the cure ſhall bee in hand by theſe following medicines, let the patient bee carefull that he ſo ſhake his yard after making water, that he may ſhake forth all the reliques of the urine which may chance to ſtoppe at the Caruncles; for if but one droppe ſhould ſtay there, it would be ſufficient to ſpoile the whole operation of the applyed medicines. After that the Caruncle ſhall bee worne away and wholly conſumed by the deſcribed medicines, which you may know by the urine flowing forth freely, and in a full ſtreame, and by thruſting up a *Cathæter* into the bladder without any ſtoppage; then it remaines that the ulcers be dryed & cicatrized; for which purpoſe the following injection is very powerfull and effectuall, and without any acrimony. ℞. *aq. fabrorum* ℔ ß. *nuc. cupreſſ. gallar. cort. granat. an.* ʒ i ß. *alum. roch.* ʒ ß. *bulliant omnia ſimul ſecund. art.* ſo make a decoction for an injection, which you ſhall uſe ſo long, untill no excrementitious humidity diſtill out of the yard. The following pouder dryes more powerfully, and conſequently haſtens forwards cicatrization, and it is alſo without acrimony. ℞. *lapidem calamin. lotum, teſtas ovorum uſtas, corallum rubrum, corticem granat. comminue omnia in pollinem*; let this pouder be uſed to the ulcers, with a waxe candle joyned to ſome *unguentum deſiccativum rubrum*, or ſome ſuch like thing. Alſo ſtrings or rods of lead thruſt into the *urethra* as thicke as the paſſage will ſuffer, even to the ulcers, being firſt beſmeared with quickſilver, and kept in day and night as long as the patient can endure, are good to be uſed. For

How to apply it.

An injection to hinder inflammation.

An emplaſter uſed by the Surgeons of *Montpelier* for Caruncles.

Another emplaſter.

How to apply it.

A caution in making water.

Signes that the Caruncle is worne away.

An epuloticke injection.

Quickſilver by drying causeth cicatrization.

they dry by their touch and cicatrize, they dilate the urenary paſſage without paine, and laſtly hinder the ſides of the ulcer from corrupting one another.

Chap. XXIIII.

Of venereall Buboes, *or ſwellings in the Groines.*

The efficient and materiall cauſes of venereous Bubo's.

What Bubo's foretell the *Lues venerea.*

THe virulency of the *Lues venerea* is ſometimes communicated to the Liver, which if it have a powerfull expulſive faculty, it expells it into the groines, as the proper emunctories thereof, whence proceed venereall Bubo's. The matter of theſe for the moſt part is abundance of cold, tough, and viſcous humours, as you may gather by the hardneſſe and whiteneſſe of the tumour, the pravity of the paine, and contumacy of curing; which alſo is another reaſon, beſides theſe that wee formerly mentioned, why the virulency of this diſeaſe may bee thought commonly to faſten it ſelfe in a phlegmaticke humour. Yet ſometimes venereall Bubo's proceed from a hot, acride and cholericke humour, aſſociated with great pain and heat, and which therupon often degenerate into virulent & corroding ulcers. Some venereous Bubo's are ſuch conjoyned accidents of the *Lues venerea*, that they foretell it; ſuch are theſe which for a ſmall while ſhew a manifeſt tumour, and ſuddenly without any manifeſt occaſion hide themſelves againe, and returne backe to the noble parts. Others are diſtinct from the *Lues venerea* though they have a ſimilitude of eſſence and matter therewith, and which therefore may be healed, the *Lues venerea* yet remaining uncured. Such are theſe which are uſually ſeen, and which therefore compared with the former may be termed ſimple and not implicit. For the cure, you muſt not uſe diſcuſſing medicins, leſt reſolving the more ſubtle part, the groſſer dregs become impact and concrete there; but much leſſe muſt we uſe repercuſſives, for that the matter is virulent. Wherefore onely attractive and ſuppurating medicines are here to bee uſed, agreeable to the humour predominant and cauſing the tumour, as more hot things in ædematous and ſcirrhous tumours, than in thoſe which reſemble the nature of a *phlegmon* or *eryſipelas*: the indication taken from the rarity and denſity of bodies inſinuates the ſame variety.

Cupping.

A potentiall Cautery.

The applying of cupping glaſſes is very effectuall to draw it forth. But when as it is drawne forth, you ſhall forthwith apply an emplaſticke medicine, and then you ſhall come to ſuppuratives. When the tumour is ripe it ſhall be opened with a potentiall cautery, if it proceed from a cold cauſe; for by the inducing of heat the reſidue of the crude matter is more eaſily concocted, beſides when as an ulcer of this kinde is opened, the matter will bee more eaſily evacuated, neither ſhall it bee fit to uſe any tent, but onely to apply pledgets. The reſidue of the cure ſhall bee performed by detergent medicines, and then if need require, the patient ſhall be let blood, and the humours evacuated by a purging medicine, but not before the perfect maturity thereof.

Chap. XXV.

Of the Exoſtoſis, *bunches or knots growing upon the bones by reaſon of the* Lues Venerea.

The matter of knots, and virulent *Tophi.*

An emplaſter againſt the bunching out of the bones.

HArd Tumours, *Exoſtoſes* and knots have their matter from thicke and tough phlegme, which cannot be diſſolved, unleſſe by hot medicines, which have a mollifying & diſſolving faculty. For which purpoſe, beſides thoſe medicines which uſually are applyed to ſcirrous tumours, you muſt alſo make uſe of *arg. viv.* commonly after this manner. ℞. *empl. filii Zach. & Ceronei, an.* ℥iii. *euphorb.* ℥ß. *emplaſt. de vigo,* ℥ii. *cerat. æſyp. deſcript. Philagr.* ℥i. *argent. vivi extinct.* ℥vi. *fiat emplaſtrum.* Spread it upon leather for your uſe. In the meane ſpace let the patient obſerve a ſparing dyet; for thus hee ſhall bee helped, if ſo be that the ſubſtance of the bones be yet unperiſhed. For if it be putrefyed & rotten, then the deſcribed medicines are of no uſe, but you muſt of neceſſity lay bare the bone, either by inciſion, or elſe by an actuall or potentiall cautery; but I had rather doe it with an actuall, for that it extracts the virulency impact in the bones, as alſo it haſtens the abſceſſe, or falling away of the corrupted bone. It ſhall be of a convenient figure to cauterize the bone, as, round, ſquare or long. I uſually, before the application of ſuch a Cauſtick, firſt divide the fleſh that lyes over it with an inciſion knife, that ſo the paine may be the leſſe, becauſe the fleſh cannot be burnt through but in a long time, by which the fire may come to the bone. But it will not bee amiſſe, before wee treat of this art, firſt to conſider the nature of the rottenneſſe of the bones.

Chap. XXVI.

Why the bones become rotten, and by what ſignes it may be perceived.

That ſolution of Continuity which is in the bones, is called by *Galen*, *Catagma*. This uſually is the cauſe of rottenneſſe; for, bones that are grated, bruiſed, rent, perforated, broken, luxated, inflamed and diſpoiled of the fleſh and skin, are eaſily corrupted; for diſpoyled of their covering, they are altered by the appulſe of the aire, which they formerly never felt, whence alſo their bloud and proper nouriſhment is dryed up and exhauſted. Beſides alſo, the *ſanies* running downe by reaſon of wounds and old ulcers, in proceſſe of time, faſtens it ſelfe into their ſubſtance, and putrefies by little and little; this putrefaction is encreaſed and cauſed by the too much uſe of oily and fatty medicines, as moiſt and ſuppurate things; for hence the ulcer becommeth more filthy and maligne, the fleſh of the neighbouring parts groweth hot, is turned into *pus*, which preſently falling upon the bone lying under it, inflames it. Laſtly, the bones are ſubject to the ſame diſeaſes, as the fleſh that lyeth under them is; beſides alſo according to *Galen*, the beginning of inflammation oft-times proceeds from the bones; but they beat not, becauſe, according to the opinion of the ancients, pulſation is a dolorificke motion of the Arteries, but the bones want ſenſe. Which verily I cannot deny, but alſo we muſt confeſſe that the membrane that encompaſſeth them, and the arteries that enter into their body, are endued with moſt exquiſite ſenſe. Wherefore the arteries compreſſed and waxing hot by reaſon of the inflamed bone, cauſe a ſenſe of paine in the *perioſtium*, ſo that the patients complaine of a dull and deepe paine, as it were ſunke into the ſubſtance of the bones. The rottenneſſe or corruption is oft-times manifeſt to the eye, as when the bone is laid bare, for then it varieth from the naturall colour, and becomes livide, yellowiſh or blacke. Otherwiſe you may perceive it by touch, as by ſearching it with a probe, as when you meet with any inequality or roughneſſe, or when by but gently touching it, your probe runs into the ſubſtance of the bone, as into rotten wood, for a bone is naturally hard, but being rotten, becomes ſoft. Yet hardneſſe is not an infallible ſigne of a ſound bone. For I have ſeene rotten and bared bones, to have ſometimes growne ſo hard, by the appulſe of the aire, that a Trepan could not, without a ſtrong endeavour, enter them. Alſo the rottenneſſe of the bone is known by the condition of the filth which flowes forth of the ulcer, for it is not onely more thin and liquid, but alſo more ſtinking. Furthermore, ſuch ulcers have a ſoft, looſe and watery fleſh; beſides alſo, they are untoward and rebellious to ſarcotick & epuloticke medicines; to which if they chance to yeeld and be cicatrized, yet within a ſhort while after the ſcarre will relent of its own accord, for that nature, deſtitute of the firm and ſound foundation of the bones, cannot build up a laudible and conſtant fleſh. Neither is it ſufficient that the Surgeon know certainly that the bone is rotten and corrupt, it is furthermore fit he know, whether this corruption be ſuperficiary, or pierce deepe into the ſubſtance of the bone, that he may know how much of the bone muſt bee ſcailed. For ſcailing is the onely cure of that which is corrupted; now it is ſcailed by that which dryes excee-

Gal. meth. 6.

The frequent cauſe of the rottenneſſe of bones.

Hip. lib. de ulc. & fract.

Gal. lib. de tum. cont. nat.

Signes of the rottenneſſe.

Hardneſſe is no infallible ſigne of ſound bones.

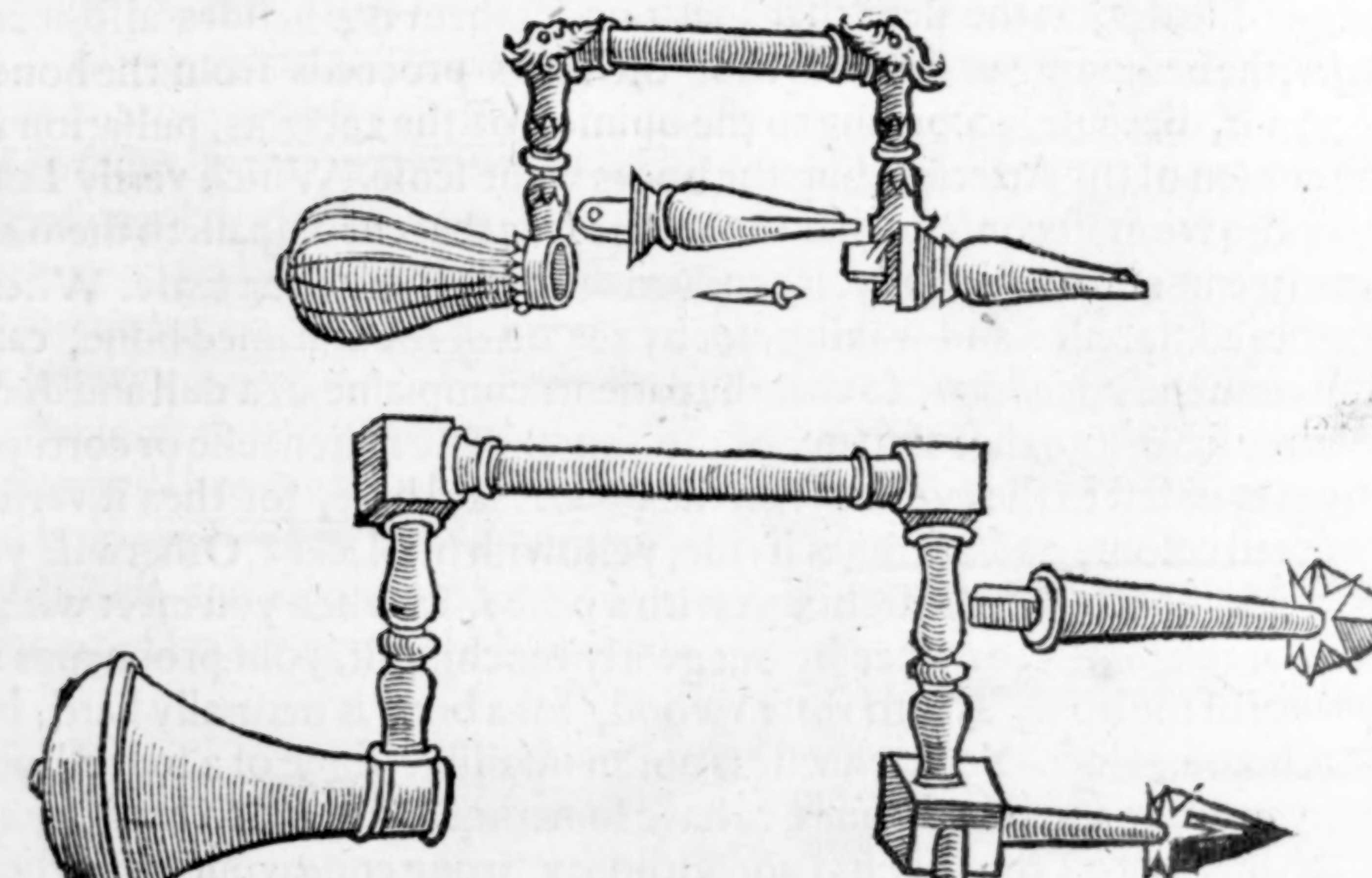
The cure of a rotten bone.

ceedingly, and drawes forth all the humidity, aſwell the excrementitious, the author of the rottenneſſe, as the alimentary. For thus it remaines without bloud and nouriſhment, and conſequently life alſo; whence it muſt of neceſſity ſcaile or fall off, being deſtitute of the glue or moiſture which joyned it to the ſound parts in vicinity and communion of life, like as leaves which fall away from the trees, the humidity being exhauſted, by which, as by glue, they adhered to the boughes. For this purpoſe Catagmatick powders are prepared to amend the corruption which is onely ſuperficiary. ℞. *pul. aloes, cretæ combuſtæ, pompholygos, an.* ʒii. *ireos flor. ariſtoloch. rot. myrrh. ceruſſæ, an.* ʒi. *pul. oſteor. combuſt.* ʒß. *terantur ſubtiliſſ. fiat pulvis*; let it bee applyed either alone by it ſelfe, or elſe with hony and a little *aqua vitæ*. Alſo the following emplaſter being applyed, ſtirs up nature to the excluſion of the broken bones, and cleanſeth the ulcers from the more groſſe and viſcide *ſanies*. ℞. *cer. nov. reſ. pini, gum. ammon. & elemi, an.* ʒvi. *tereb.* ℥iii. *pul. maſtich. myrrh. an.* ℥ß. *ariſtol. rot. ireos flor. aloes, opopan. euphorb. an.* ʒi. *olei roſati quantum ſufficit, fiat emplaſt. ſecundum artem. Euphorbium*, according to *Dioſcorides*, takes off the ſcailes of bones in one day. Hereto alſo conduceth *Emp. de betonica.* Or, ℞. *olei caryophyl.* ℥ß. *camph.* ʒii. *miſceantur ſimul in mortario, & utere.* But if that part of the bone which is corrupt cannot thus be taken away, then muſt you uſe the ſcailing Trepans and Scrapers deſcribed formerly in wounds of the head; eſpecially if any more great or ſolid bone bee foule. Furthermore the here deſcribed Trepan will be good to perforate the rotten bone in many places where it is corrupted, untill, as it were, a certaine bloudy moyſture iſſue forth at the holes; for thus it more freely enjoyes the aire, and alſo the force of the medicines admitted by theſe holes works more powerfully.

A catagmatick powder.

A deſquamatory or ſcailing plaſter. *Dioſ. lib. 3. cap. 78.*

A Trepan with two triangular bits & a pin to hold them in the ſtocke: as alſo another Trepan having foure-ſquare & ſixe-ſquare bits convenient for to be uſed in the rottenneſſe of greater bones.



But if the rottenneſſe be more deepe, and the bone more hard, either by nature or accident, as by the occaſion of the too long admiſſion of the aire, then the rotten ſcailes ſhall bee cut off by the inſtruments deſcribed in wounds of the head, driving them into the bone with leaden mallets, leſt the part ſhould bee too much offended or ſhaken with the blow. The ſcailes and fragments ſhall bee taken forth with mullets, the ſignes that all the rottenneſſe is taken away, are the ſolidneſſe of the bone thereunder, and the bloudy moiſture ſweating out thereat.

Signes that the rottenneſſe is taken away.

Chap.

mentitious, the au-
without bloud and
ceſſity ſcaile or fall
ſound parts in vici-
the trees,the humi-
e boughes. For this
ption which is one-
.*ireos flor. ariſtoloch.*
fiat pulvis; let it bee
aqua vitæ. Alſo the
uſion of the broken
le *ſanies*. ℞. *cer. nov.*
rrh. an. ℥ß. *ariſtol. rot.*
fiat emplaſt. ſecundum
s of bones in one day.
ß. *camph.* ℥ii. *miſce.*
which is corrupt can-
and Scrapers deſcri-
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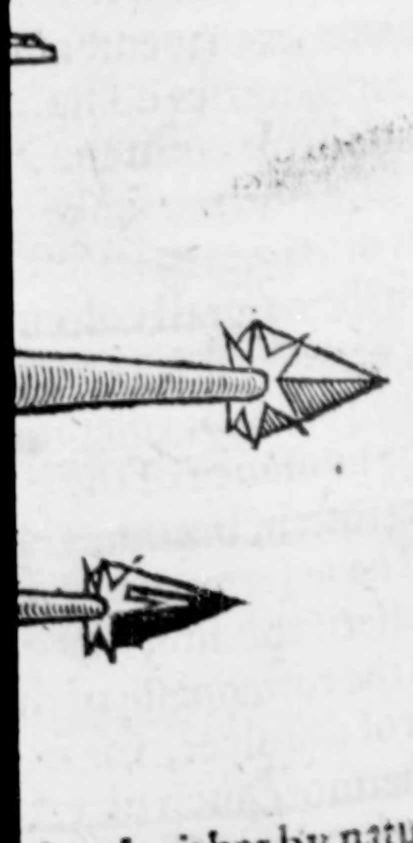

hard, either by nature or
the aire, then the rotten
ounds of the head, driving
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bee taken forth with mul-
the ſolidneſſe of the bone
t.

CHAP. XXVII.

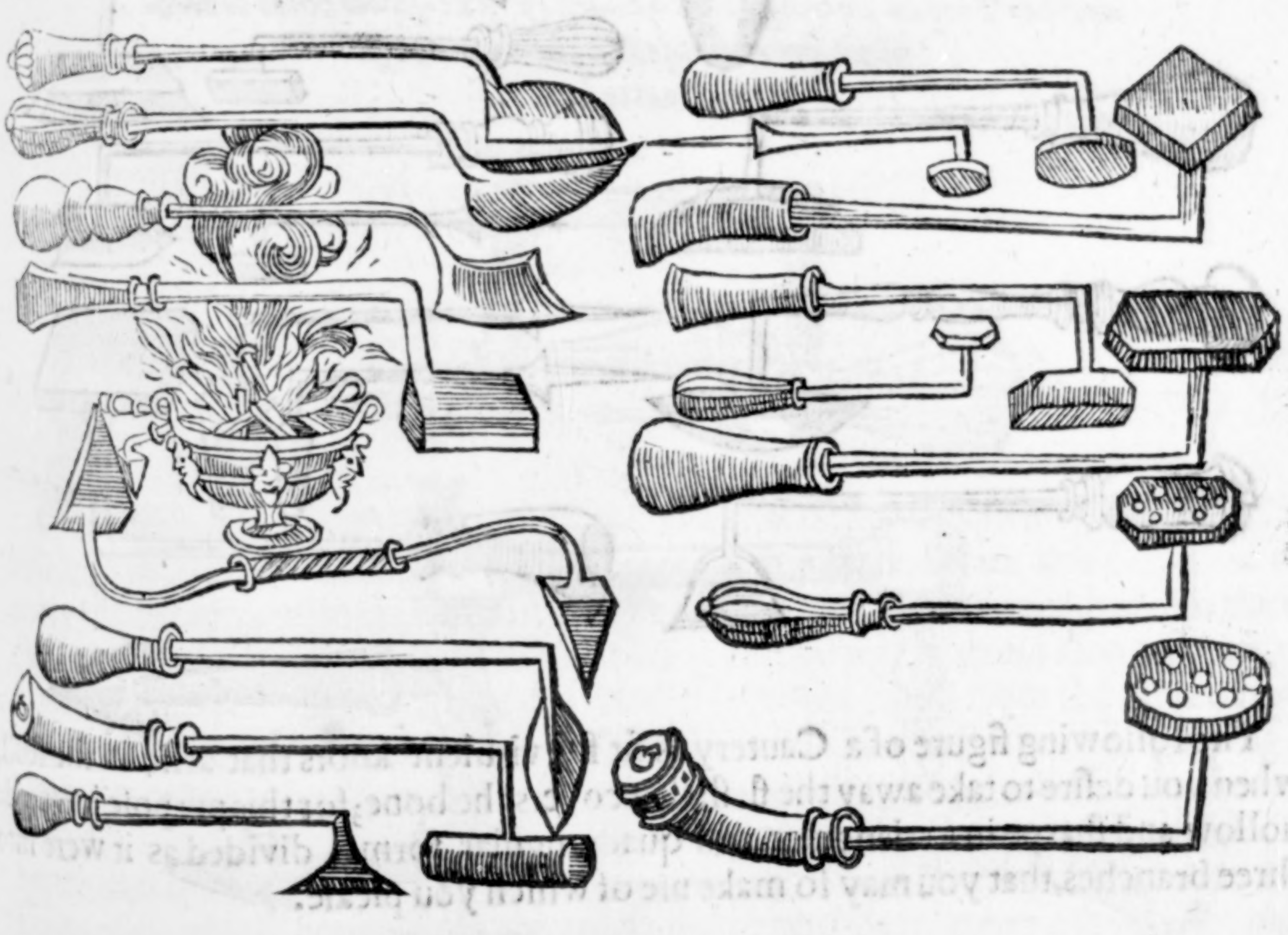
Of actuall & potentiall Cauteries.

BUT if the deſcribed remedies cannot take place, by reaſon of the malignity or magnitude of the rottenneſſe, then muſt wee come to actuall and potentiall cauteries. But I ſhould rather approve of actuall, becauſe by ſtrengthening the part, they conſume the excrementitious humours wherewith it is overcharged, to wit, the matter of the *Caries*; which is not ſo effectually performed by potentiall cauteries. Yet are we oft-times forced to uſe theſe, to pleaſe the patients which are terrified at and affraid of hot irons. Potentiall Cauteries are *aqua fortis*, *aqua vitrioli*, ſcalding oyle, melted *ſulphur* and boyling, and the like; in pouring on of which I would have the Surgeon to bee prudent and induſtrious, leſt he ſhould raſhly violate the neighbouring ſound parts by the burning touch of theſe things; which his temerity would cauſe vehement paines, inflammations and other horride ſymptomes. For actuall cauteries, their variety in figure is ſo great, that it cannot bee defined, much leſſe ſet downe in writing; for they muſt be varied according to the largeneſſe of the rottenneſſe, and the figure and conformation of the fouled bones. Such as are more uſuall I have thought good here to delineate unto you, content onely to admoniſh you thus much, that ſome of theſe work by pricking, ſome by cutting, ſome flatwiſe, and other ſome with their points made to the forme of an Olive leafe.

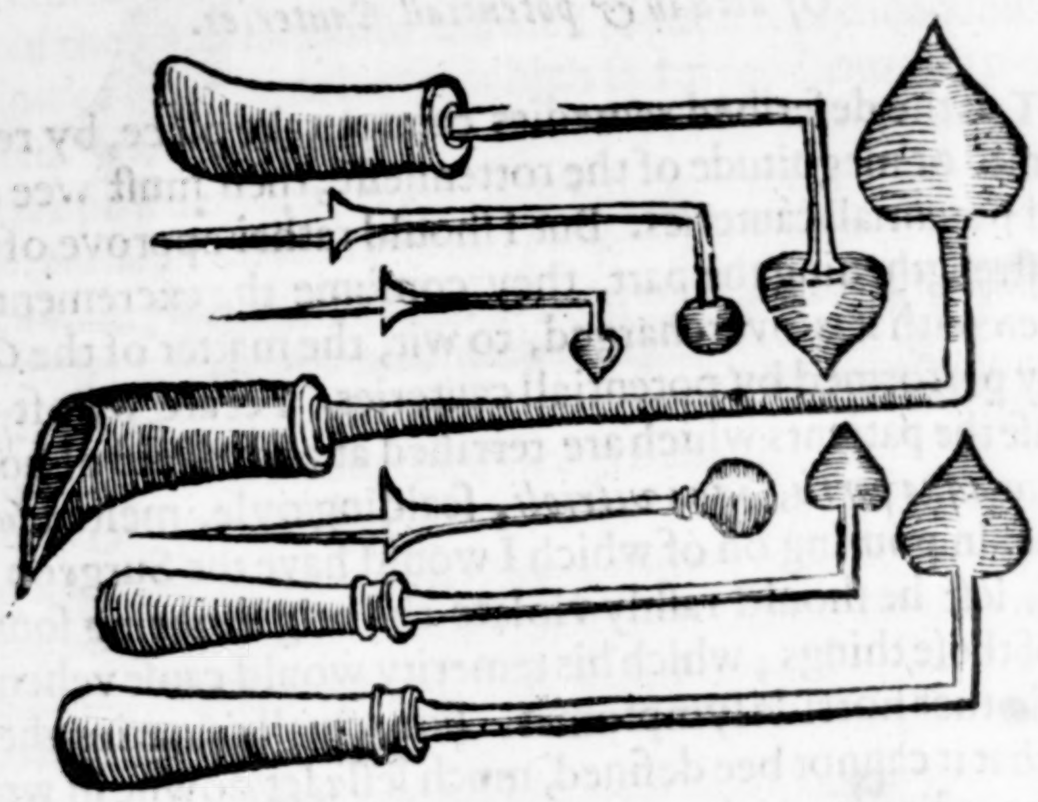
Actuall Cauteries to be preferred before potentiall.

Potentiall Cauteries.

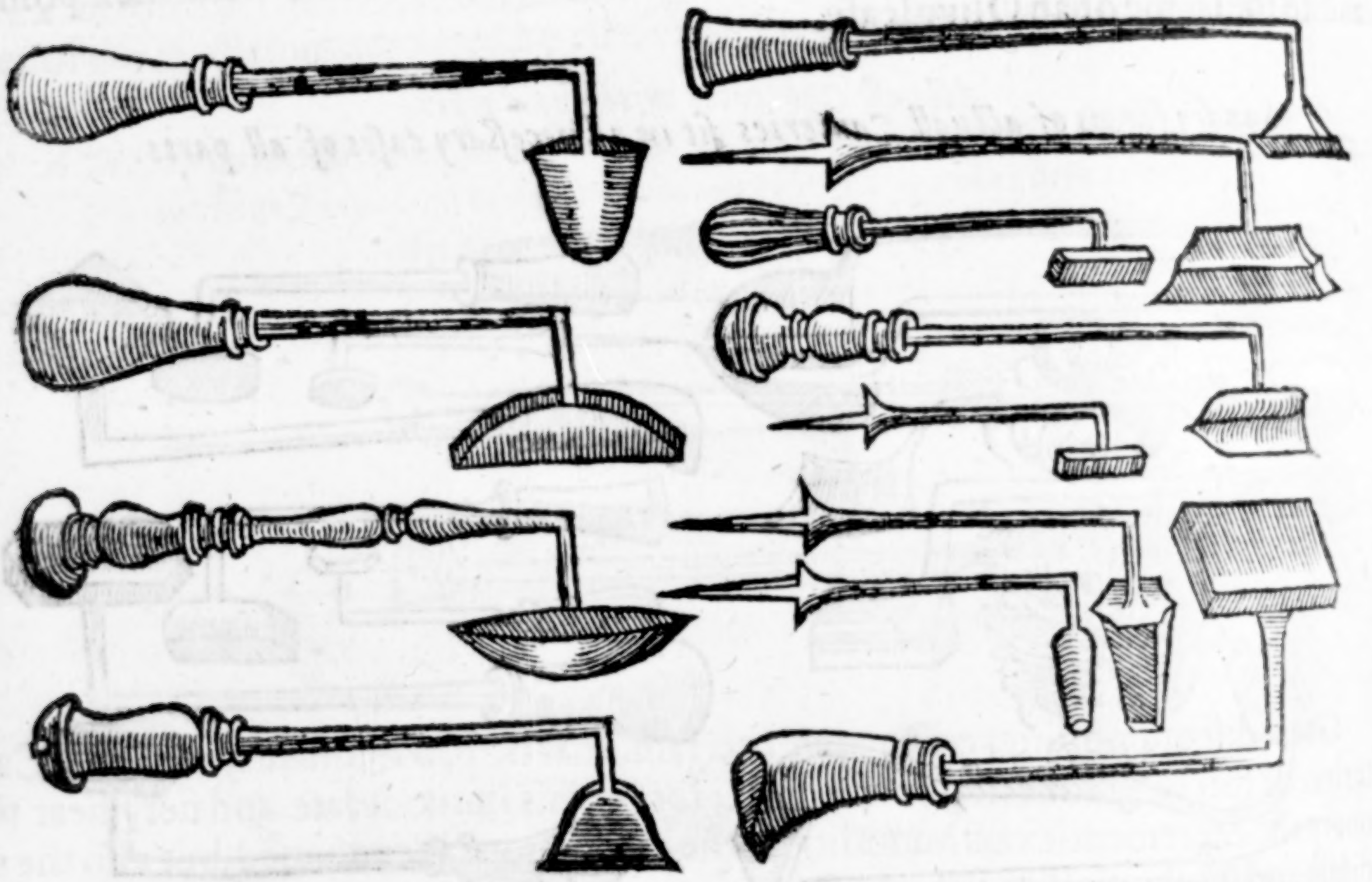
Sundry forms of actuall Cauteries fit in all neceſſary caſes of all parts.



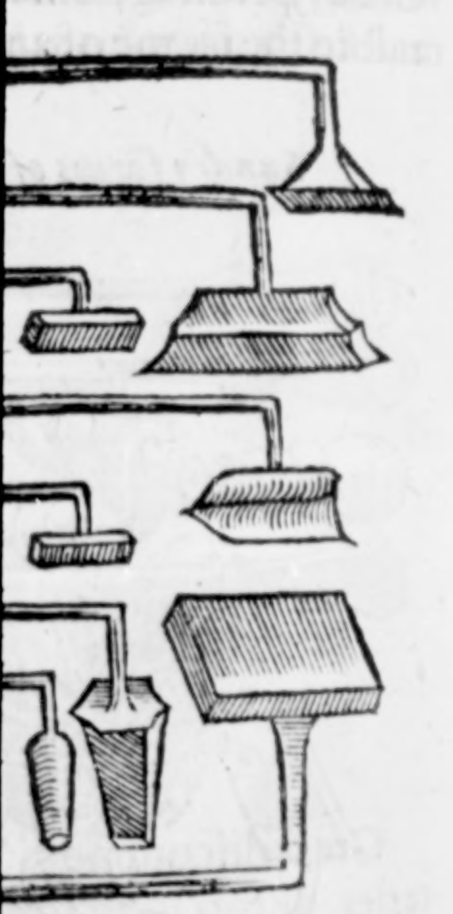
Other Cauteries.



Other Cauteries for the same purpose.



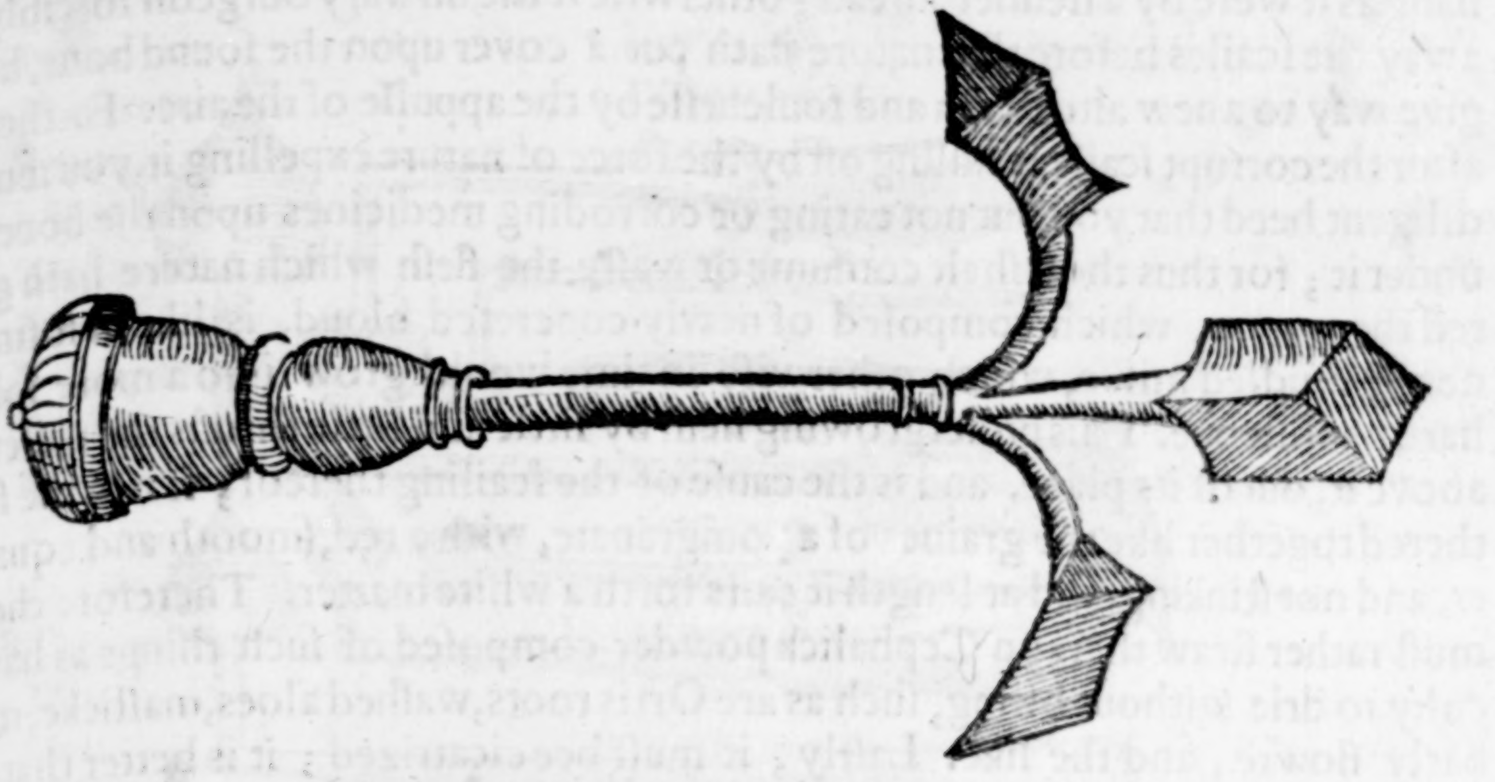
The following figure of a Cautery is fit for virulent knots that ariſe in the ſcull, when you deſire to take away the fleſh that covers the bone; for this purpoſe it is made hollow and ſharpe in a triangular and quadrangular forme, divided as it were into three branches, that you may ſo make uſe of which you pleaſe.



ots that arise in the ſcull,
for this purpoſe it is made
, divided as it were into
aſe.

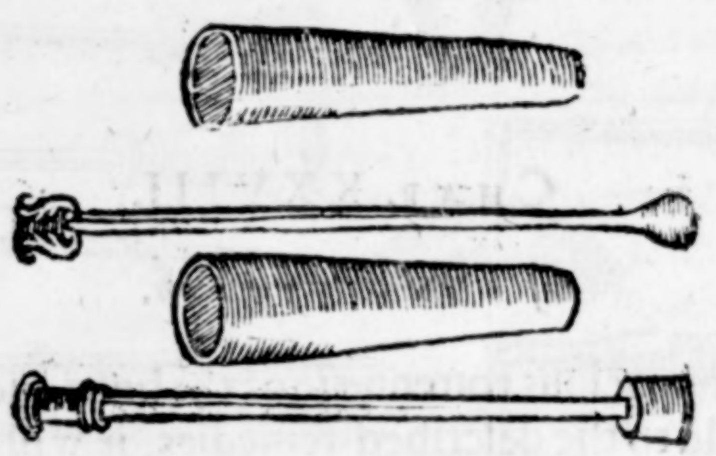
The

The figure of a hollow and cutting Cauterie.



The Cauteries whoſe formes are hereafter expreſt take place in rotten bones that lye deep in, wherein you cannot make uſe of the formerly deſcribed without touching of the neighbouring ſound parts. To avoyd which danger you ſhall put your Cautery even to the bone through an iron pipe, which may keep the neighbouring and fleſhy parts from burning.

Actuall Cauteries with their pipes.



Great diſcommodities enſue upon too raſh, that is, too frequently applyed Cauteries, or too long adhering to the bone; for by this immoderate and fiery heat not onely the excrementitious humidity of the rotten bone is conſumed, but alſo the radicall and ſubſtantiall moiſture of the part is exhauſted, wherein alone nature, endeavouring to caſt off the corrupt ſcailes, and ſever the ſound from the rotten bone, and to ſubſtitute fleſh, ſtands and conſiſts. Whereof, the meaſure of applying of Cauteries ought to be taken from the greatneſſe of the rottenneſſe, and the excrementitious, or after a manner foaming humidity ſweating through the pores of the bone. But before you preſſe your cautery into the rotten bone which lies very deep in, as that which happens in the thigh bone, and upon other very fleſhy parts, you muſt diligently defend the neighbouring, ſound and fleſhy parts, as it were with a covering, for that the humour diffuſed by the touch of the fire, burns the other places whereunto it diffuſeth it ſelfe like ſcalding oyle. After the cauterization you muſt helpe forwards the falling away of the ſcailes, by ſometimes dropping in our oyle of whelpes, being made ſcalding hot. This oyle, though very fit for this purpoſe, yet doe I not iudge it fit to uſe it too often, it may ſuffice to have dropped it in ſome twice or thrice. For at length it may violate the ſound bone, that lyes under the rotten, by the oyly, ſubtle and moiſt ſubſtance. Furthermore, a bone is the moſt dry part of the body, therefore unctuous and moiſt medicines are contrary to its temper and conſiſtence. But it conduceth often and gently to move the ſcailes al-

Manner of applying of Cauteries.

Oile of whelpes helps forwards the caſting off of ſcailes.

ready

A caution in moving the ſcailes of burnt bones.

ready beginning to ſeparate themſelves, and it haſtens the ſlackeneſſe of nature in caſting them off. Yet may you not uſe force, unleſſe peradventure when as they hang as it were by a ſlender thread; otherwiſe if the unwary Surgeon forcibly pluck away the ſcailes before that nature hath put a cover upon the ſound bone, hee ſhall give way to a new alteration and fouleneſſe by the appulſe of the aire. Furthermore, after the corrupt ſcaile is falling off by the force of nature expelling it, you muſt have diligent heed that you put not eating or corroding medicines upon the bone that is under it; for thus thou ſhalt conſume or waſte the fleſh which nature hath generated thereupon, which compoſed of newly concreted bloud, is like in ſoftneſſe to newly crudled milke, which otherwiſe in time would grow into a more ſolid and hard conſiſtence. This undergrowing fleſh by little aud little thruſts the rotten bone above it, out of its place, and is the cauſe of the ſcailing thereof; it is at the firſt gathered together like the graines of a pomgranate, with a red, ſmooth and equall *ſanies*, and not ſtinking, and at length it caſts forth a white matter. Therefore then wee muſt rather ſtraw thereon Cephalick powder compoſed of ſuch things as have a faculty to drie without biting, ſuch as are Orris roots, waſhed aloes, maſticke, myrrhe, barly flowre, and the like. Laſtly, it muſt bee cicatrized; it is better that ſcailes of bones fall away of themſelves by the onely force of nature, than to be plucked away by the force of medicines or inſtruments; becauſe, ſuch as are too violently and forcibly plucked away, leave corners like to fiſtulous ulcers. Neither ought the corrupted membranes when they are turned into *pus* to bee plucked away too violently, or to bee touched by too acride medicines; for paine hereupon ariſing, hath divers times cauſed inflammation, convulſion and other pernicious ſymptomes. Therefore it is better to commit this buſineſſe to nature, which in ſucceſſe of time, by making uſe of the expulſive faculty, will eaſily free it ſelfe from this rotten ſubſtance; for that which is quick as farre as it is able, will ſtill put away that which is dead from it.

Cephalick pouders of what compoſed.

Chap. XXVIII.

Of a vulnerary potion.

BUt if the contumacious rottenneſſe of the bone and alſo a rebellious ulcer ſhall not yeeld to the deſcribed remedies, it will bee convenient to preſcribe a vulnerary potion to the patient. For nature helped by ſuch a potion, hath to my knowledge ſundry times done wondrous things, in the amendment of corrupt bones, and conſolidation of ulcers. For theſe potions though they doe not purge the noxious humours away by ſtoole, yet are they wondrous effectuall to cleanſe ulcers, and free them from the exceſſe of excrementitious humours, to cleanſe the bloud, and purge it from all impurity, to agglutinate broken bones, and knit the ſinewes. I have here thought good to ſpeake of them, and chiefly, for that they were much commended by the Ancients, but neglected by the moderne Phyſicians and Surgeons. But if the cure of wounds and old ulcers be performed by deterſion, and the repoſition of the loſt ſubſtance, what medicine can ſooner or rather do it than that, which by its admirable and almoſt divine force ſo purgeth the bloud, that thereof, as from a fit and laudible matter, the fleſh or any other loſt ſubſtance may be fitly reſtored, and the part recover its former union? But if fiſtulous Ulcers, Cancers, Gouts & the like diſeaſes be offended by the uſe of ſalt, ſpiced, acride meates and others which are of ſubtle parts, as muſtard, onions and garlike, or any other exceſſe in meat, or drinke; why may they not become milde and gentle by medicated and contrary meats and drinks, or at leaſt bee reduced to a more equall temper? Therefore that Surgeons may know of what things ſuch compoſitions may ariſe, I have here thought good to reckon them up, that you may learn what they are.

The uſe of vulnerary potions.

Scabious.
Sanicle.
Bugle.
Mouſ-eare.
Burnet.
Madder.
Tanſie.
Tops of hempe.
Tops of Brambles.
Sowes bread.
Comfory the greater and leſſer.
Vervine.
Biſtorte.
Mugwurte.
Periwincle.
Centaury.
Adders tongue.
Betonie.
Carduus benedictus.
The cordiall flowers.
Ariſtolochia, or Birth-wurts.
Speedwell.
Agrimonie.

The capillaryes.
Herbe Robert.
Doves foot.
Dogges tongue.
Avenes.
Prunella.
Oſmund.
Clarye.
Gentian.
Herniaria.
Red Colewurt or Cabbage.
Scordium.
Cattes minte.
Cinque foile.
River Crabs.
Mace.
Bolearmenick.
Petum or Tobacco.
Mead-ſweet.
Colts-foot.
Dandelion.
Plantaine.
St. Johns wurte.

Of all theſe the Surgeon ſhall make choice according to the mind and judgement of the Phyſician, ſuch as he ſhall thinke fit and proper to every ulcer or wound, or to each wounded and ulcerated part, according to the condition of the time, the temper of the patient and kinde or nature of the diſeaſe. You may make drinkes not onely of the decoctions of theſe, but alſo of their juices in white wine, or *œnomel*, which are good not onely to purifie the maſſe of the bloud, to cleanſe ſanious, virulent, filthy and diſſenterious ulcers, but alſo to drive away putrefaction, ſcail bones, diſſolve clotted bloud in bruiſes, to draw, plucke out and exterminate all ſtrange bodies, as I have often obſerved to my great admiration. They are compoſed uſually after this manner. ℞. *ſavic. bugul. ſcabioſ. beton. ſcord. nepet. an.* m. ß. *uvar. mund. ſem. hyper. & card. ben. an* ℥i. *trium flor. cord. an.* p. ii. *coquantur complete in aq. communi; poſtea in fine adde vini alb. mel. roſ. & cinnam. quod ſufficit, fiat decoctio, coletur per manicam.* Let him drink ℥iii. in the morning 3. houres before dinner. You may alſo with good ſucceſſe make injections with the ſame liquor into fiſtulous and ſinuous ulcers, as alſo to waſh the ſordid ulcers therewith. You may alſo boile the ſame ſimples, as herbs, flowers and ſeeds in the patients broths, that ſo they may acquire a medicinable and nouriſhing faculty. For the time of the affect, wherein you may with good ſucceſſe make uſe of theſe, we have read in *Guido*, that he uſed not to preſcribe theſe potions to his patients when as they were newly wounded, for that they commonly are compoſed of things hot and opening, which heat and attenuate the bloud, whence there would be danger of a defluxion, upon the affected part. Wherefore when the matter is come to ſuppuration, when as there nothing remains, but to cleanſe the ulcer and fil it with fleſh, no inflammation as now remaining in the part, I judge theſe potions may then be uſed with good ſucceſſe.

The forme of a vulneraty potion.

In what time of the diſeaſe they are chiefly to be uſed.

CHAP. XXIX.

Of Tetters, Ring-wormes or Chops occaſioned by the Lues venerea.

UPon the cure of the *Lues venerea*, uſually Tetters and Chops happen thereupon, which make furrowes in the palmes of the hands & ſoles of the feet. They acquire their matter from ſalt phlegme, or aduſt choler, or the reliques of the venereous virulency ſent thither. The cure eſpecially whenas the diſeaſe is grown old, is difficult, by reaſon that the humour hath long accuſtomed to flow that way, & for that it hath corrupted the habite of the part by the continuall defluxion; but the cure is more eaſie if the diſeaſe bee newly bred. Now you may know it is newly bred by the redneſſe, accompanyed by a great itching, and not only a drineſs of the skin, but alſo a thickneſs & denſeneſs thereof. That which is old, beſides theſe fore-recited ſigns, have ſcaily & branlike hardneſſes conjoined therewith, which by ſcratching & rubbing caſt off ſcailes. For general medicines, the diſtemper of the liver & habit of the body muſt be corrected, which by the occaſion of the former diſeaſe & remedies apt to inflame the bloud, cannot but much ſwerve from their native temper. This may be done by diet conveniently appointed, by purging and altering medicines, bleeding, bathing, applying of cupping-glaſſes and horns. For topick or particular medicines, waſh ſuch as are newly or lately bred with the following water which dries and is of ſubtle parts. ℞.*aq.roſ.& pariet.an* ℥i.*aq.alum.*℥ii.*calc.*℥ii.*alum.*ʒiii.*pul.ſubl.*℈iiii.*fiat lent.et minim.ebul.in baln.mar.* This water ſhall bee made more or leſſe forcible according to the condition of the diſeaſe. Or, ℞.*ol.tart.*℥ii.*ſap.com.*℥iv.*m ſc.fiat unguent.ad uſum.* If the Phyſician ſhall think good, let the patient uſe a decoction of *Guajacum*, but that very weak. But old Tetters and Chops muſt be ſoftned with emollient, attenuating and inciding decoctions, as alſo with liniments, ointments and plaſters having the ſame effect. Then let the reſidue of the cure be performed by fumigations ſuch as this which followes. ℞.*pul.cinab.*℥ii. *lad.aſſ.odor.ſtirac cal.an.*℥ß.*olib.maſtic.an* ʒiii.*olei tart & theriac.q.ſ.fiant trochiſci*; uſe at each time ſome ℥ß.of them, and let only the affected parts receive the ſmoak. Some commend the rubbing of the hands with the following medicine. Take the aſhes of wine lees, make thereof a lie, & ſtrain it though an hypocras bag, then put thereto ſome rennet, let them be well mixed together in a mortar, and herewith let the hands be rubbed or waſhed. Or, ℞.*unguent.enul.*℥ii.*fugit.*℥ii. Or elſe, ℞.*reſ.pini*, ℥i.*ceruſ.*℥ß.*argent.viv.* ʒiii.*ſucci citri & lapath.acut.an.*℥ß. Let them be incorporated & make a liniment to be uſed to the part. If to this you adde ſublimate ſo waſhed & prepared, as women uſe for their faces, you ſhall make it more effectuall. Others take burnt alume made into powder, and incorporated with the yolke of an egge, the juice of Citrons, and a little aloes diſſolved in *oxymel ſcilliticum.*

Signes of the new bred diſeaſe.

The cure of newly come Tetters.

A water drying virulent tetters.

The cure of old tetters.

A Fumigation.

A Liniment.

CHAP. XXX.

Of curing the Lues Venerea *in infants and little children.*

INfants oft-times conceive the ſeeds of this diſeaſe in the wombs of their mothers, and are borne infected therewithall, puſtles preſently ariſing over all the bodies, infecting with the like diſeaſe as many nurſes as give them ſuck; they ſcarce ever recover thereof, for that they contracted the diſeaſe from their firſt conformation. But ſuch as are ſomewhat bigger, if they chance to catch the diſeaſe after they are born by ſucking ſom infected nurſe, or by any other occaſion or kind of contagion, often times receive cure. For firſt, you ſhal cauſe the nurſe to uſe the *aqua theriacalis* hereunder deſcribed, for the ſpace of 20 or more daies, that ſo ſhe may the better arm her ſelf againſt the contagion of this diſeaſe, & yeeld milk which may have the faculty both of meat and medicine; ſhe ſhall be carefull as often as ſhe gives the child ſuck, to waſh and dry her teat or pap, leſt the

The cure.

virulency that the child breathes out at his mouth, be impact in the little holes of the teat through which the milk flowes out. Now the puſtules of little children ſhall bee anointed with ſome ointment that receives *argentum vivum* in ſome ſmall quantity, as *unguentum enulatum cum mercurio*, or the like. Then ſhall it be ſwathed or bound up in ſwathes and clothes aired with the formerly deſcribed fumigations. For the reſt, it ſhall be kept as warm as you can in ſome warm place. Theſe & the like muſt be done not in one continued courſe, but at ſeverall ſeaſons, otherwiſe it is to be feared, that it would cauſe ulcers to ariſe in the mouth, or elſe ſalivation. If any ulcers ariſe in the mouth and ſpread therein, they ſhall be touched with the formerly deſcribed waters, but made ſomewhat weaker, having regard to the tender age of the patient; if the infant ſhall get this diſeaſe of its nurſe, let the nurſe be preſently changed, for it being otherwiſe nouriſhed with tainted and virulent bloud, can never be healed. Many have by theſe meanes recovered; but ſuch as have periſht, have not periſht by the default of medicines, but by the malignity and vehemency of the diſeaſe.

A deſcription of the aqua Theriacalis, *or treacle water formerly mentioned.*

A treacle water.

The manner of making it.

℞. *raſur. interior. ligni ſancti gummoſi*, ℔ ii. *polypod. querni*, ℥ iv. *vini albi dulcedinis expertis* ℔ ii. *aquæ fontan. puriſſ.* ℔ viii. *aquar. cichor. & fumar. an.* ℥ iv. *ſem. junip. heder. & baccar. lauri an.* ℥ ii. *caryophil. & macis, an.* ℥ ß. *cort. citri ſaccharo condit. conſ. roſ. anthos, cichor. bugloſ. borag. an.* ℥ ß. *conſ. anulæ camp. theriac. vet. & mithrid. an.* ℥ ii. diſtill them all in *balneo Mariæ* after the following manner. Let the *Guajacum* bee infuſed in equall parts of wine and the forementioned waters for the ſpace of twelve houres, and the reſidue of the things in that which remaines of the ſame wine and waters for ſixe houres ſpace, beating ſuch things as may require it, then let them bee mixed altogether, that ſo the liquor may be endued with all their faculties. Which that it may be the more effectually performed, let them be boyled, put up in glaſſe bottles cloſely ſtopped for ſome three or four hours ſpace, in a large kettle filled with boiling water, then let them be put into a glaſſe alembicke, and ſo diſtilled. Give ℥ iv. of this diſtilled liquor at once, being aromatized with ʒ i. of cinamon, and ℈ i. of *Diamargariton*, and ℥ ß. of ſugar, to give it a pleaſing taſte. Such a drinke doth not onely retunde the virulency of the *Lues venerea*, but ſtrengthens the noble parts. *Rondeletius* makes an *aqua theriacalis* after this manner. ℞. *theriac. vet.* ℔ i. *acetoſ.* m iii. *rad. gram.* ℥ iii. *puleg. card. ben. an.* m ii. *flor. chamæm.* p ii. *temperentur omnia in vino albo, & diſtillentur in vaſe vitrio:* reſerve the water for uſe; whereof let the patient take ℥ ii. with ℥ iii. of ſorrell and bugloſſe water: he wiſheth this to be done when he ſhall enter into bed or a ſtove; for ſo this diſtilled liquor will cauſe ſweat more eaſily, and mitigate paine, whether given by it ſelfe, or with a decoction of Grommell, or of *chyna*, or burre-docke roots; yet if the patient bee of a phlegmaticke conſtitution, hee ſhall uſe a decoction of *Guajacum* in ſtead of a decoction of *chyna*, for it penetrates more ſpeedily, by reaſon of its ſubtlety, of parts, and alſo expells the dolorificke matter.

Rondeletius his Treacle water.

The End of the Nineteenth Booke.

OF THE SMALLPOCKS AN MEAZLES:

AS ALSO OF VVORMES AND THE LEPROSIE.

THE TWENTIETH BOOKE.

CHAP. I.

Of the cauſes of the Small Pockes and MeaZles.

FOR that the ſmall Pocks and Meazles are diſeaſes, which uſually are forerunners and foretellers of the plague, not onely by the corruption of humours, but oft times by default of the aire; moreover, for that wormes are oft times generated in the plague, I have thought good to write of theſe things, to the end that by this treatiſe the young Surgeon may bee more amply and perfectly inſtructed in that peſtilent diſeaſe. Alſo I have thought good to treat of the Leproſie as being the off-ſpring of the higheſt corruption of humours in the body. Now the ſmall pocks are puſtles, and the meazels ſpots which ariſe in the top of the skinne by reaſon of the impurity of the corrupt blood ſent thither by the force of nature. Moſt of the Antients have delivered that this impurity is the reliques of the menſtruous blood remaining in the body of the infant, being of that matter from whence it drew nouriſhment in the wombe, which lying ſtill or quiet for ſome ſpace of time, but ſtirred up at the firſt opportunity of a hotter ſummer, or a ſoutherly or rainy ſeaſon, or a hidden malignity in the aire, and boyling up, or working with the whole maſſe of the blood, ſpread or ſhew themſelves upon the whole ſurface of the body. An argument hereof is, there are few or none who have not beene troubled with this diſeaſe, at leaſt once in their lives, which when it begins to ſhew it ſelfe, not content to ſet upon ſome one, it commonly ſeazeth upon more: now commonly there is as much difference betweene the ſmall pockes and meazles, as there is between a Carbuncle and a peſtilent *Bubo*. For the ſmall pocks ariſe of a more groſſe and viſcous matter, to wit, of a phlegmaticke humour. But the meazles of a more ſubtle and hot, that is, a cholericke matter, therefore this yeilds no markes thereof, but certaine ſmall ſpots without any tumour, and theſe either red, purple, or blacke. But the ſmall pockes are extuberating puſtles, white in the midſt, but red in the circumference, an argument of blood mixed with choler

What the ſmall pockes and Meazles are.
Their matter.

Why the Meazles doe not itch.

Prognoſtickes.

ler, yet they are ſcarce knowne at the beginning, that is, on the firſt or ſecond day they appeare; but on the third and fourth day they bunch out and riſe up into a tumour, becomming white before they turne into a ſcab; but the meazles remaine ſtill the ſame. Furthermore the ſmall pockes pricke like needles by reaſon of a certaine acrimony, and cauſe an itching; the meazles doe neither, either becauſe the matter is not ſo acride and biting, or elſe for that it is more ſubtle, it eaſily exhales, neither is it kept ſhut up under the skinne. The patients often ſneeſe when as theſe matters ſeek paſſage out, by reaſon of the putride vapoures aſcending from the lower parts upwards to the braine. They are held with a continuall feaver, with paines in their backes, itching of their noſe, head-ach, and a vertiginous heavineſſe, and with a kinde of ſowning or fainting, a nauſeous diſpoſition, and vomiting, a hoarſeneſſe, difficult and frequent breathing, an inclination to ſleepe, a heavineſſe of all the members, their eyes are fiery and ſwollen, their urine redde and troubled. For prognoſtickes, wee may truely ſay thus much, That the matter whence this affect takes its originall, partakes of ſo malign, peſtilent and contagious a quality, that not content to mangle and ſpoile the fleſhy parts, it alſo eates corrupts the bones, like the *Lues venerea*, as I obſerved not onely in *Anno Don* 8. but alſo in divers other yeares, whereof I thinke it not amiſſe to ſet downe this notable example.

A hiſtorie.

What grievous and pernitious ſymptomes may happen by the ſmall pockes.

The daughter of *Claude Piquè* bookſeller, dwelling in S. *James* his ſtreet at *Paris*, being ſome foure or five yeeres old, having beene ſicke of the ſmall pockes for the ſpace of a month, and nature could not overcome the malignity of the diſeaſe, there roſe abſceſſes upon the *ſternon* and the joints of the ſhoulders, whoſe eating and virulent matter, corroded the bones of the *ſternon*, and divided them inſunder; alſo it conſumed a great part of the toppe of the ſhoulder-bone, and the head of the bladebone: of this thing I had witneſſes with me, *Marcus Myron* phyſitian of *Paris*, and at this preſent the Kings chiefe phyſitian, *John Doreau* Surgeon to the *Conte de Bryane*, the body being diſſected in their preſence. Alſo you may obſerve in many killed by the malignity of this diſeaſe, and diſſected, that it cauſeth ſuch impreſſion of corruption in the principall parts, as brings the dropſie, ptiſick, a hoarſeneſſe, *Aſthma*, bloody fluxe ulcerating the guts, and at length bringing death, as the puſtles have raged or raigned over theſe or theſe entrailes, as you ſee them to do over the ſurface of the body; for they do not only moleſt the externall parts, by leaving the impreſſions and ſcarres of the puſtles and ulcers, rooting themſelves deepe in the fleſh, but alſo oft times they take away the faculty of motion, eating aſunder, and weakening the joints of the elbow, wreſt, knee and ancle. Moreover ſundry have been deprived of their ſight by them, as the Lord of *Guymenay*, others have loſt their hearing, and otherſome their ſmelling, a fleſhy excreſcence growing in the paſſages of the noſe and eares. But if any reliques of the diſeaſe remaine, and that the whole matter thereof bee not expelled by the ſtrength of nature, then ſymptomes afterwards ariſe, which ſavour of the malignity of the humour, yea and equall the harme of the ſymptomes of the *Lues venerea*.

CHAP. II.

Of the cure of the Small Pockes and Meazles.

The cure.

THe cure of this diſeaſe uſeth to bee divers, according to the condition of the humour free from, or partaker of the venenate quality. For if it partake of malignity, and the childe bee a ſucking childe, ſuch things ſhall be given to the Nurſe as may infringe and overcome the ſtrength of the malignity, as wee ſhall ſhew more at large, when wee come to treat of the cure of children which are ſick of the plague; howſoever it be, the child muſt be kept in a warm roome free from winde, and muſt bee wrapped and covered with ſcarlet cloathes, untill the pockes come forth. There ſhall bee provided for the Nurſe medicated brothes with purſlaine, lettuce, ſorrell, ſuccory, borage, and French barly bound up in a cloth. She ſhall ſhun all ſalt, ſpiced and baked meates, and in ſtead of wine drinke a decoction of liquerice, raiſons and ſorrell roots. She ſhall alſo take purging medicines, as if ſhe were ſicke of the ſame diſeaſe, that ſo her milke may become medicineable. Laſtly, ſhee ſhall obſerve the ſame diet as is uſually preſcribed to ſuch as have the plague. You ſhall give the child no pappe, or if you give it any, let it bee very little. But if the child be weaned, let him abſtaine from fleſh, untill the feaver have left him, and the pocks bee fully come forth: in ſtead of fleſh let him feed on barly and almond creames, chicken brothes, wherein the fore-named herbes have beene boyled, ponadoes, gellies, culaſſes, prunes and raiſons. Let his drinke bee a priſan made of French barly, graſſe and ſorrell roots, or with a nodula containing the foure cold ſeeds, the pulpe of prunes and raiſons, with the ſhavings of Ivory and harts-horne; Betweene meales the ſame decoction may be mixed with ſome ſyrupe of violets, but not of roſes or any other aſtringent ſyrupe, leſt wee hinder the courſe and inclination of the humour outwards. Let his ſleepe be moderate, for too ſound ſleep drawes back the mater to the center, and encreaſeth the feaver; you muſt neither purge, nor draw bloud the diſeaſe increaſing or being at the height, unleſſe peradventure there bee a great plenitude, or elſe the diſeaſe complicate with other, as with a pleuriſie, inflammation of the eyes, or a ſquinancie which require it, leſt the motion of nature ſhould be diſturbed; but you ſhal think it ſufficient to looſe the belly with a gentle glyſter: but when the height of the diſeaſe is over, and in the declenſion thereof, you may with *Caſſia* or ſome ſtronger medicine evacuate part of the humours and the reliques of the diſeaſe. But in the ſtate and increaſe it is better to uſe ſudorificks, which by attenuating the humours and relaxing the pores of the ſkin may drive the cauſe of the diſeaſe from the center to the circumference, which otherwiſe reſiding in the body might bee a cauſe of death; as I and *Richard Hubert* obſerved in two maides, whereof one was foure, and the other ſeventeene years old; for we diſſecting them both being dead, found their entrailes covered with ſcabby or cruſted puſtles, like thoſe that break forth upon the ſkin. We muſt not think that a bleeding at noſe at the beginning of the diſeaſe, or in the firſt foure or five dayes ſhould carry away the matter and originall of the diſeaſe, for nevertheleſſe the pocks will come forth; but for that this is a true and naturall *criſis* of this diſeaſe, as that which is carryed to the ſurface and circumference of the body, ſuch bleeding muſt not be ſtopped, unleſſe you feare it will cauſe ſowning. The matter ſhall bee drawne out with a decoction of figs, husked lentils, citron ſeeds, the ſeeds of fennell, parſly, ſmallage, roots of graſſe, raiſons and dates. For ſuch a decoction, certainly if it have power to cauſe ſweat, hath alſo a faculty to ſend forth unto the skin the morbificke humour; the ſeeds of fennell and the like opening things relaxe and open the pores of the ſkin; figges lenifie the acrimonie of the matter, and gently cleanſe, the lentils keepe the jawes and throate, and all the inward parts from puſtles, and hinder a fluxe by reaſon of their moderate aſtriction, but having their huskes on, they would bind more than is required in the diſeaſe; dates are thought to comfort the ſtomack, and citron ſeeds to defend the heart from malignity, liquerice to ſmooth the throat, and hinder hoarſneſſe and cauſe ſweat. But theſe things ſhall be given long after meat, for it is not fit to ſweat preſently after meat; ſome there bee who would have the child wrapped in linnen clothes ſteeped in this decoction being hot, and afterwards hard wrung forth. Yet I had rather to uſe bladders or ſpunges, or hot bricks for the ſame purpoſe; certainly a decoction of millet, figges and raiſons, with ſome ſugar, cauſeth ſweat powerfully. Neither is it amiſſe whileſt the patient is covered in all other parts of his body, and ſweats, to fan his face, for thus the native heat is kept in & ſo ſtrengthened, and fainting hindred, and a greater excretion of excrementitious humours cauſed. To which purpoſe you may alſo put now and then to the patients noſe a *nodulus* made with a little vinegar & water of roſes, camphire, the powder of ſanders, and other odoriferous things which have a cooling faculty, this alſo will keepe the noſe from puſtles.

The child muſt have no pappe.

How ſound ſleepe doth harme in this diſeaſe.

Of purging, bleeding, and ſudorificks.

A hiſtory.

A ſudorificke decoction.

When it is beſt to procure ſweat.

CHAP. III.

What parts muſt be armed againſt, and preſerved from the Pocks.

THe eyes, noſe, throte, lungs, and inward parts ought to be kept freer from the eruption of puſtles than the other parts; for that their nature and conſiſtence is more obnoxious to the malignity of this virulency, and they are eaſilyer corrupted and blemiſhed. Therefore leſt the eyes ſhould be hurt, you muſt defend them when you firſt begin to ſuſpect the diſeaſe, with the eye-lids, alſo moiſtening them with roſe-water, verjuice or vinegar, and a little Camphire. There are ſome alſo who for this purpoſe make a decoction of Sumach, berbery-ſeeds, pomgranate pills, aloe,ſand a little ſaffron; the juice of ſowre pomgranates, and the water of the whites of egges dropped in with roſe-water, are good for the ſame purpoſe; alſo womans milke mixed with roſe-water and often renewed, and laſtly, all ſuch things as have a repercuſſive quality. Yet if the eyes bee much ſwolne and red, you ſhall not uſe repercuſſives alone, but mixe therewith diſcuſſers and cleanſers, ſuch as are fit by a familiarity of nature to ſtrengthen the ſight; and let theſe bee tempered with ſome fennell or eye-bright water. Then the patient ſhall not looke upon the light or red things for feare of paine and inflammation; wherefore in the ſtate of the diſeaſe when the pain and inflammation of the eyes are at their height, gently drying and diſcuſſive things properly conducing to the eyes are moſt convenient, as waſhed aloes, tuttye and Antimonie in the water of fennell, eye bright and roſes. The formerly mentioned nodulus will preſerve the noſe, and linnen clothes dipped in the fore-ſaid aſtringent decoction, put into the noſthrils and outwardly applyed. We ſhall defend the jawes, throate and throttle, and preſerve the integrity of the voice by a gargle of oxycrate, or the juice of ſowre pomgranates, holding alſo the grains of them in their mouths, & often rouling them up & down therein, as alſo by nodula's of the ſeeds of *pſilium*, quinces & the like cold & aſtringent things. We muſt provide for the lungs & reſpiration by ſyrupes of jujubes, violets, roſes, white poppyes, pomgranats, water-lillies, and the like. Now when as the pocks are throughly come forth, then may you permit the patient to uſe ſomewhat a freer diet, and you muſt wholly buſie your ſelfe in ripening and evacuating the matter, drying and ſcailing them. But for the meazels, they are cured by reſolution onely, and not by ſuppuration; the pocks may bee ripened by annoynting them with freſh butter, by fomenting them with a decoction of the roots of mallowes, lillies, figs, line-ſeeds and the like. After they are ripe, they ſhall have their heads clipped off with a paire of ſizzers, or elſe bee opened with a golden or ſilver needle, leſt the matter conteined in them, ſhould corrode the fleſh that lyes thereunder, and after the cure, leave the prints or pockholes behinde it, which would cauſe ſome deformity; the *pus*, or matter being evacuated, they ſhall be dryed up with *unguent. roſat.* adding thereto ceruſſe, litharge, aloes and a little ſaffron in powder; for theſe have not onely a faculty to dry, but alſo to regenerate fleſh; for the ſame purpoſe the floure of barly and lupines are diſſolved or mixed with roſe-water, and the affected parts annoynted therewith with a fine linnen ragge; ſome annoint them with the ſwathe of bacon boiled in water and wine, then preſently ſtrow upon them the floure of barly or lupines, or both of them. Others mixe crude hony newly taken from the combe, with barly floure, and therewithall annoint the puſtles ſo to dry them; being dryed up like a ſcurfe or ſcab, they annoint them with oyle of roſes, violets, almonds, or elſe with ſome creame, that they may the ſooner fall away, the puſtles being broken; tedious itchings ſollicite the patients to ſcratch, whence happens excoriation and filthy ulcers, for ſcratching is the occaſion of greater attraction. Wherfore you ſhall bind the ſick childs hands, and foment the itching parts with a decoction of marſh mallowes, barly and lupines, with the addition of ſome ſalt. But if it bee already excoriated, then ſhall you heale it with *unguent. album camphorat.* adding thereto a little powder of Aloes or *Cinnabaris*, or a little *deſiccativum rubrum*. But if notwithſtnding all your application of repelling medicines,

How to defend the eyes.

When the eyes muſt not be defended by repercuſſives onely.

How to defend the noſe.

How the mouth

How the lungs.

How to prevent pock-arres.

Remedies for excoriation.

puſtules,

puſtles nevertheleſſe break forth at the eyes, then muſt they be diligently cured with all manner of *Collyria*, having a care that the inflammation of that part grow not to that bignes, as to break the eies, & that which ſomtimes happens to drive them forth of their proper orbes. If any cruſty ulcers ariſe in the noſthrils, they may be dryed and cauſed to fall away by putting up of oyntments. Such as ariſe in the mouth, palate and throat, with hoarſeneſſe and difficulty of ſwallowing, may be helped by gargariſmes made with barly water, the waters of plantaine and chervill, with ſome ſyrupe of red roſes, or *Diamoron* diſſolved therein; the patient ſhall hold in his mouth ſugar of roſes or the tablets of *Elect. diatragacanth. frigid.* The Pock-arres left in the face, if they bunch out undecently, ſhall be clipped away with a paire of ſizzers, and then annointed with freſh *unguent. citrin.* or elſe with this liniment. ℞. *amyli triticei, & amygdalarum excorticatarum, an.* ʒiß. *gum. tragacanth.* ʒß. *ſeminis melonum, fabarum ſiccarum excorticat. farinæ hordei, an.* ℥iiii. Let them all bee made into fine powder, and then incorporated with roſe-water, and ſo make a liniment, wherewith anoynt the face with a feather; let it bee wiped away in the morning, waſhing the face with ſome water and wheat bran; hereto alſo conduceth *lac virginale*; Gooſe, ducks and Capons greaſe are good to ſmooth the roughneſſe of the skin, as alſo oile of lillies; hares bloud of one newly killed and hot is good to fill and plaine, as alſo whiten the Pock-holes, if they bee often rubbed therewith. In ſtead hereof many uſe the ſwathe of Bacon rubbed warme thereon; alſo the diſtilled waters of beane flowers, lilly roots, reed-roots, egge-ſhels, and oile of egs are thought very prevalent to waſte and ſmoothe the Pock-arres.

For the ulcers of the mouth and jawes.

To help the unſightly ſcars of the face.

A Diſcourſe of certaine monſtrous creatures which breed againſt nature in the bodies of men, women, and little children, which may ſerve as an induction to the enſuing diſcourſe of worms.

As in the *macrocoſmos* or bigger world, ſo in the *microcoſmos* or leſſer world there are winds, thunders, earthquakes, ſhowres, inundations of waters, ſterilities, fertilities, ſtones, mountaines and ſundry ſorts of fruits and creatures thence ariſe. For who can deny but that there is winde conteined ſhut up in flatulent abſceſſes, and in the guts of thoſe that are troubled with the cholicke? Flatulencies make ſo great a noyſe in divers womens bellies, if ſo be you ſtand neare them, that you would think you heard a great number of frogs croaking on the night time: That water is contained in watery abſceſſes, and the belly of ſuch as have the dropſie, is manifeſted by that cure which is performed by the letting forth of the water; in fits of Agues the whole body is no otherwiſe ſhaken and trembles, than the earth when it is heard to bellow, and felt to ſhake under our feet. He which ſhall ſee the ſtones which are taken out of the bladder, & come from the kidnies and divers other parts of the bodie, cannot deny but that ſtones are generated in our bodies. Furthermore wee ſee both men & women who in their face, or ſome other parts, ſhew the impreſſion, or imprinted figure of a cherry, plumb, ſervice, fig, mulberry & the like fruit; the cauſe hereof is thought to be the power of the imagination concurring with the formative faculty, and the tenderneſſe of the yeelding and waxe-like *embryon*, eaſie to be brought into any forme or figure by reaſon of the proper and native humidity. For you ſhall find that all their mothers whileſt they went with them have earneſtly deſired or longed for ſuch things, which, whileſt they have too earneſtly agitated in their mindes, they have trans-ferred the ſhape unto the childe, whileſt that they could not enjoy the things themſelves. Now who can deny but that bunches on the backe, and large wens reſemble mountaines? Who can gainſay, but that ſqualide ſterility may bee aſſimulated to the hectick dryneſs of waſted and conſumed perſons? and fertility deciphered by the body diſtended with much fleſh and fat, ſo that the legs can ſcarce ſtand under the burden of the belly? But that divers creatures are generated in one creature, that is, in man, and that in ſundry parts of him, the following hiſtories ſhall make it evident.

A compariſon between the bigger and leſſer world.

The generation of wind in mans body.

Of water.

Of ſtones.

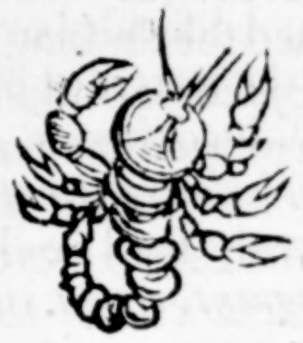
Of fruits from the firſt conformation.

Hollerius tels that a certaine Italian by frequent ſmelling to the herbe Baſill had a Scorpion bred in his braine, which cauſed long and vehement paine, and at length death;

Lib. de morb. inter cap. 1.

death; therefore I have here expreſt the figure of that Scorpion found when as his braine was opened.

The figure of a Scorpion.

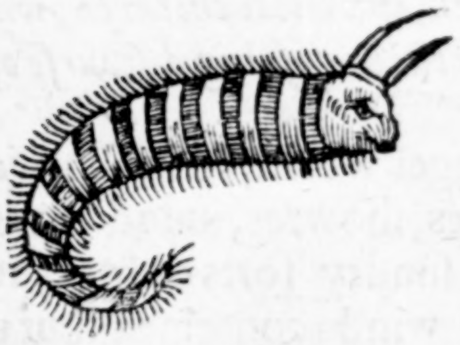


It makes ***Hollerius*** conjecture of the cauſe and originall of this Scorpion, probable for that *Chryſippus*, *Dyophanes* and ***Pliny*** write, that of baſill beaten betweene two ſtones, and laid in the ſun, there will come Scorpions.

Lib. 5. de part. morbis cap. 7.

Fernelius writes that in a certaine ſouldier, who was flat noſed, upon the too long reſtraint or ſtoppage of a certaine filthy matter that flowed out of the noſe, that there were generated two hairy wormes of the bigneſſe of ones finger, which at length made him mad, he had no manifeſt feaver, and he died about the twentieth day: this was their ſhape, by as much as we can gather by ***Fernelius*** his words.

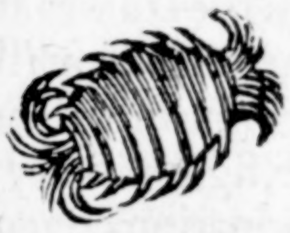
The effigies of the wormes mentioned by Fernelius.



A hiſtory.

Lewes Duret a man of great learning and credit, told mee that hee had come forth with his urine, after a long and difficult diſeaſe, a quick creature, of colour red, but otherwiſe like in ſhape a Millepes, that is, a Cheſlope, or Hog-louce.

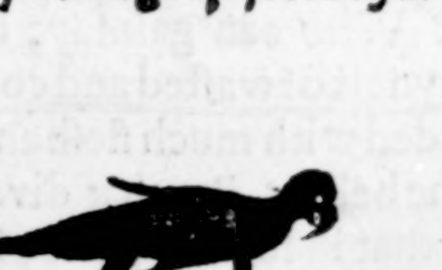
The ſhape of a Millepes caſt forth by urine.



A hiſtorie.

Count *Charles* of ***Manſfieldt***, laſt ſummer troubled with a grievous and continuall feaver, in the duke of *Guiſes* place caſt forth a filthy matter at his yard, in the ſhape of a live thing almoſt juſt in this forme.

The ſhape of a thing caſt forth by urine.



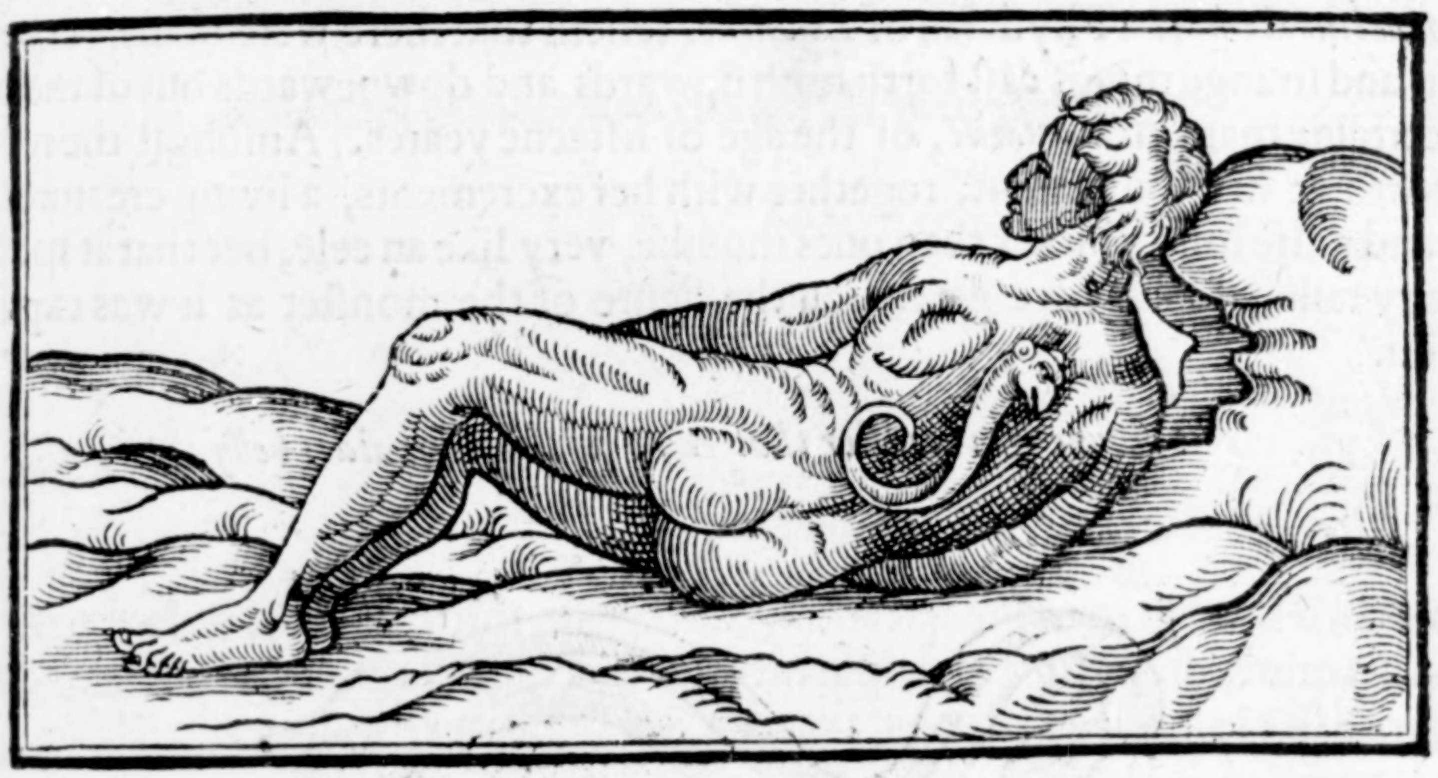
Mon-

Nicolaus Flor. Gord. lib. 7. c. 18.

Monſtrous creatures alſo of ſundry formes are alſo generated in the wombes of women; ſomewiles alone, otherwhiles with a *mola*, and ſometimes with a child naturally and well made, as frogs, toads, ſerpents, lizzards: which therefore the Ancients have tnrmed the Lumbards brethren, for that it was uſuall with their women, that together with their naturall and perfect iſſue they brought into the world wormes, ſerpents, and monſtrous creatures of that kinde generated in their wombes, for that they alwaies more reſpected the decking of their bodies, than they did their diet. For it happened whileſt they fed on fruits, weeds and traſh, and ſuch things as were of ill juice, they generated a putride matter, or certainely very ſubject to putrefaction and corruption, and conſequently opportune to generate ſuch unperfect creatures. *Jonbertus* telleth that there were two Italian women, that in one moneth brought forth each of them a monſtrous birth; the one that marryed a Tailor, brought forth a thing ſo little, that is reſembled a Rat without a taile; but the other a Gentlewoman, brought forth a larger, for it was of the bigneſſe of a Cat; both of them were black, and as ſoone as they came out of the wombe, they ran up high on the wall, and held faſt thereon with their nailes. *Licoſthenes* writes that in *Anno Dom.* 1494. a woman at *Cracovia*, in the ſtreete which taketh name from the holy Ghoſt, was delivered of a dead child, who had a ſerpen faſtned upon his back, which fed upon this dead child, as you perceive by this following figure.

Lib. error popul.

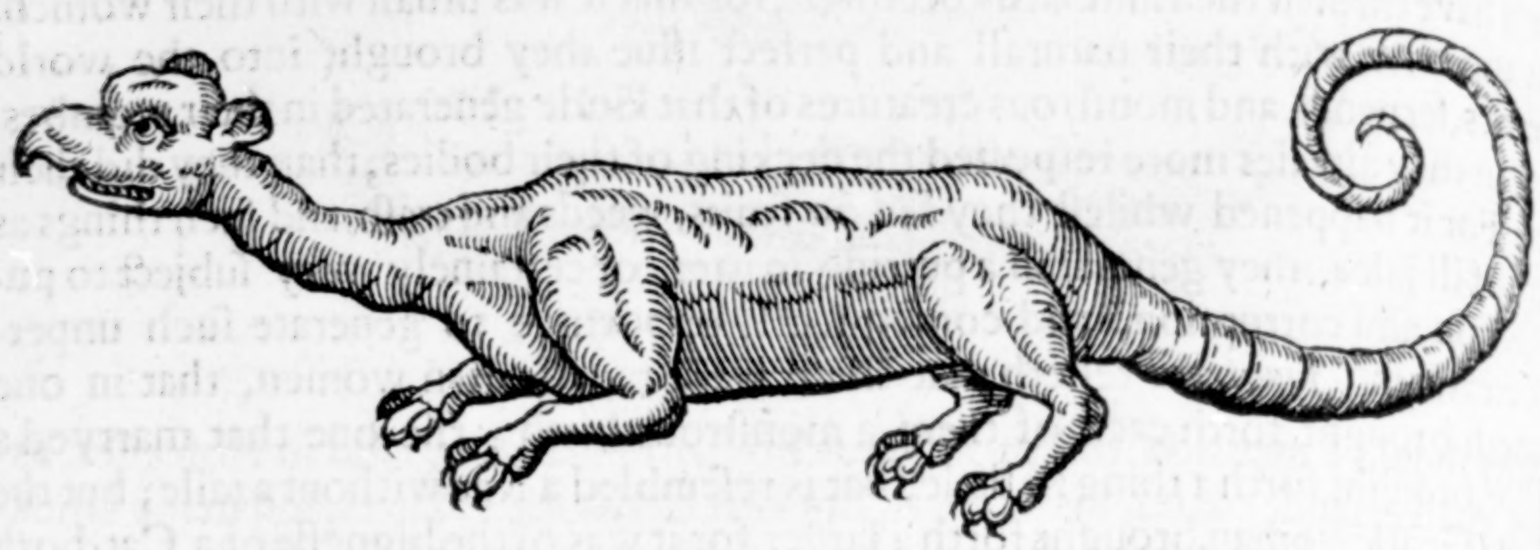
The figure of a ſerpent faſtned to a child.



Lib. de occult. nat. mir. cap. 8.

Levinus Lemnius tels a very ſtrange hiſtory to this purpoſe. Some few yeares agone (ſaith he) a certaine woman of the Iſle in Flanders, which being with child by a Sailer, her belly ſwelled up ſo ſpeedily, that it ſeemed ſhee would not bee able to carry her burden to the terme preſcribed by nature; her ninth moneth being ended, ſhe calls a midwife, and preſently after ſtrong throwes and paines, ſhee firſt brought forth a deformed lumpe of fleſh, having as it were two handles on the ſides, stretched forth to the length and manner of armes, and it moved and panted with a certain vitall motion, after the manner of ſpunges and ſea-nettles; but afterwards there came forth of her wombe a monſter with a crooked noſe, a long and round necke, terrible eies, a ſharpe taile, and wonderfull quick of the feet, it was ſhaped much after this manner.

The ſhape of a monſter that came forth of a womans wombe.

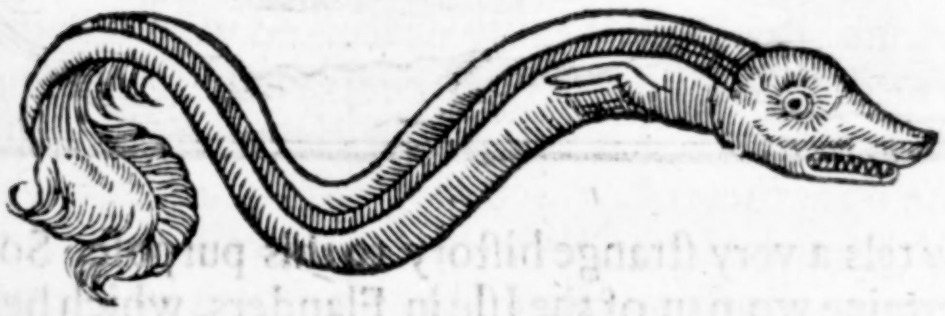


As ſoone as it came into the light it filled the whole roome with a noiſe and hiſſing, running to every ſide to finde out a lurking hole wherein to hide its head, but the women which were preſent, with a joynt conſent fell upon it, and ſmothered it with cuſhions, at length the poore woman wearied with long travell, was delivered of a boy, but ſo evilly entreated and handled by this monſter, that it died as ſoone as it was chriſtened.

Lib. de divinis natur. characteriſmis.

Cornelius Gemma a Phyſician of *Lovaine*, telleth that there were many very monſtrous and ſtrange things caſt forth both upwards and downewards out of the belly of a certaine maid of *Lovaine*, of the age of fifteene yeares. Amongſt the reſt, ſhe caſt forth at her fundament, together with her excrements, a living creature ſome foot and halfe long, thicker than ones thumbe, very like an eele, but that it had a very hairy taile; I have here given you the figure of the monſter as it was expreſſed by him.

The figure of a monſter that came forth of a maides belly.



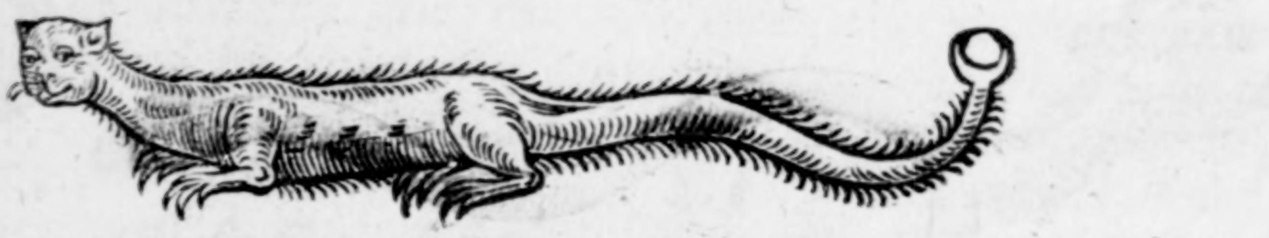
A hiſtorie.

Maſter *Peter Barque* and *Claude le Grand*, Surgeons of *Verdun*, lately affirmed to mee that they cured the wife of a certaine Citizen of *Verdun*, which out of an Abſceſſe broken in the belly, caſt forth a great number of wormes, together with the quitture, and theſe were of the thickneſſe of ones finger, with ſharpe heads, which ſo gnawed her guts, that the excrements for a long time came forth at the ulcer, but now ſhe is perfectly recovered.

A hiſtorie.

Anthony Benenius a Phyſician of *Florence* telleth that one *John Menuſierus*, a man of fourty yeares of age, troubled with continuall paines at his ſtomacke, was often at the point of death, neither found he any helpe by the counſels of many Phyſicians which hee uſed. At length comming to have his advice, hee gave him a vomit, by meanes whereof hee caſt up a great quantity of corrupt and putride matter, yet was hee not thereby eaſed of his paine. Therefore he gave him another vomit, by force whereof he caſt up much matter like to the former, and together therewith a worme of foure fingers long, having a red round head, of the bigneſſe of a great peaſe, covered over the body with a ſoft downineſſe, with a forked taile, in manner of an halfe moone, going upon foure feet, two before, and two behind.

The figure of a worme caſt forth by vomit.



Why ſhould I mention the prodigious bodies which are found in Abſceſſes, as ſtones, chalke, ſand, coales, ſnaile-ſhels, ſtrawes, hay, hornes, haires, and many kinds of living and dead creatures? For there is nothing in the generation of theſe things (cauſed by corruption, preceded by much alteration) which may make us admire, or hold us in ſuſpence, eſpecially if we ſhall conſider that nature, the fruitfull parent of all things, hath put divers portions and particles of the univerſall matter whereof the greater world is compoſed into this microcoſmos, or little world, man; whereby he might the rather ſeem to be made to the reſemblance and form of the greater. Wherefore it ſo deſports it ſelfe here, that it may counterfeit and reſemble all the actions and motions which it uſeth to performe in the ſcene of the greater world, in this little one, if ſo be that matter be not wanting.

The efficient & materiall cauſes of ſuch things as are preternaturally generated in our bodies.

Chap. IIII.

Of the wormes which uſe to breed in the guts.

A Groſſe, viſcide and crude humour is the materiall cauſe of wormes, which having got the beginning of corruption in the ſtomacke, is quickly carried into the guts, and there it putrefies, having not acquired the forme of laudible *Chylus* in the firſt concoction. This, for that it is viſcide, tenaciouſly adheres to the guts, neither is it eaſily evacuated with the other excrements; therfore by delay it further putrefies, & by the efficacy of heat, it turns into the matter and nouriſhment for wormes. This alimentary humour being conſumed, unleſſe ſome freſh ſupply the want thereof, which may eaſe their hunger, they move themſelves in the guts with great violence, they cauſe grievous and great paines, yea, and oft-times they creep up to the ſtomack, and ſo come forth by the mouth, and ſometimes they aſcend into the holes of the palate, and come forth at the noſe. Wormes are of three ſorts; for ſome are round & long, others broad and long, others ſhort & ſlender. The firſt are called by the Ancients, *Teretes*, that is, round; for that they are long and round. The ſecond are named *Tenia*, for that their bodies are long & broad like a rowler or ſwathe. The third are termed *Aſcarides*, for that they commonly wrap themſelves up round. Other differences of wormes are taken from their colours, as red, white, black, aſh-coloured, yellowiſh. Some alſo are hairy, with a great head like the little fiſh which the French call Chabot, we, a Millers-thumbe; in ſome diſeaſes many wormes are generated and caſt forth by the fundament, as ſmall as haires, and uſually of colour white, and theſe are they which are called *Aſcarides*. The diverſity of colours in wormes proceedeth not from the like diſtinct diverſity of humours whereof they are generated. For the melancholicke and cholericke humour by their qualities are wholly unfit to generate wormes. But this manifold variety in colour, is by reaſon of the different corruption of the chylous or phlegmaticke humour whereof they are bred. The long and broad wormes are oftentimes ſtretched alongſt all the guts, being like to a mucous or albuminous ſubſtance, and verily I ſaw one voided by a woman, which was like to a ſerpent, and ſome ſixe foote long; which ought not to ſeeme ſtrange, ſeeing it is noted by the Ancients, that they have ſeene wormes ſo long, as the length of the whole guts, that is, ſeven times the length

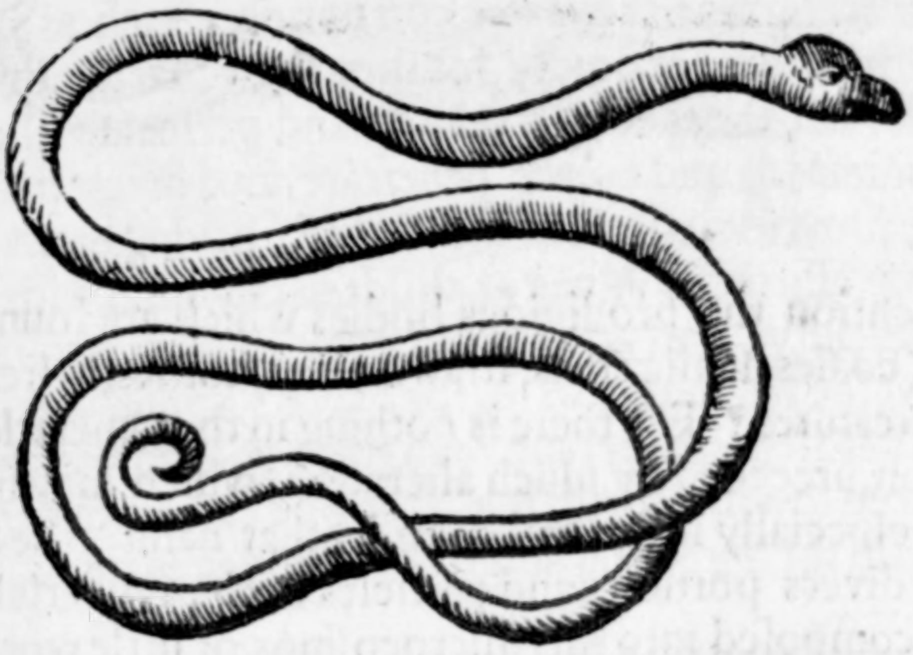
How wormes are generated.

The reaſon that they ſometimes come forth at the mouth.

The differences of wormes.

A hiſtory.

length of ones body. *Wierus* writes that he ſaw a country man who voided a worme eight foot and one inch long, in head and mouth reſembling a Ducke, which therefore I have thought good here to expreſſe.



The figure of a worme, generated in, and caſt forth of the Guts.

In obſervat.

In what places of the belly wormes are generated.

Ad finem lib. 4. de morbis.

Signes of wormes in the ſmall guts.

Signes of wormes in the great guts.

Signes of *Aſcarides.*

Valeriola affirmeth that he ſaw a worme above nine foote long. Now as wormes differ in ſhape, ſo are their places of generation alſo different. For the round and long wormes are commonly generated in the ſmaller guts, the reſt in the greater, but eſpecially the *Aſcarides*: none breede in the ſtomacke, as that which is the place of the firſt concoction. There truely the matter which breedeth theſe wormes, gets the firſt rudiment of corruption, but comes to perfection onely in the guts; they breed in ſome infants in their mothers bellies, by the pravity and corrupt nature of the humour flowing from the mother for the nouriſhment of the childe, which for that then they doe not expell it by ſiege, it by delay putrefieth the more, and yeeldes fit matter for the breeding of wormes, as ſome have obſerved out of *Hippocrates*. Laſtly, wormes breed in people of any age that are Belly-Gods and given to gluttony, as alſo in ſuch as feed upon meats of ill juice, and apt to corrupt, as crude ſummer fruits, cheeſe, and milke-meates. But to know in what part of the Guts the wormes doe lurk, you muſt note, that when they are in the ſmall guts, the patients complain of a paine in their ſtomacke, with a dogge-like appetite, whereby they require many and ſeverall things without reaſon, a great part of the nouriſhment being conſumed by the wormes lying there; they are alſo ſubject to often fainting, by reaſon of the ſympathy which the ſtomacke, being a part of moſt exquiſite ſenſe, hath with the heart, the noſe itches, the breath ſtinkes, by reaſon of the exhalations ſent up from the meat corrupting in the ſtomacke; through which occaſion they are alſo given to ſleep, but are now and then waked therefrom by ſuddaine ſtartings and feares; they are held with a continued and ſlow feaver, a dry cough, a winking with their eielids, and often changing of the colour of their faces. But long and broad wormes, being the innates of the greater guts, ſhew themſelves by ſtooles repleniſhed with many ſloughes, here and there reſembling the ſeedes of a Musk-melon or cucumber. *Aſcarides* are knowne by the itching they cauſe in the fundament, cauſing a ſenſe as if it were Ants running up and downe; cauſing alſo a *teneſmus*, and falling downe of the fundament. This is the cauſe of all theſe ſymptomes; their ſleepe is turbulent and often clamorous, when as hot, acride and ſubtle vapors, raiſed by the wormes from the like humor and their foode, are ſent up to the head; but ſound ſleep by the contrary, as when a miſty vapour is ſent up from a groſſe and cold matter. They dream they eate in their ſleepe, for that while the wormes doe more greedily conſume the chylous matter in the guts, they ſtirre up the ſenſe of the like action in the phantaſie. They grate or gnaſh their teeth by reaſon of a certaine convulſifick repletion, the muſcles of the temples and jawes being diſtended by plenty of vapours. A dry cough comes by the conſent of the vitall parts ſerving for reſpiration, which the naturall, to wit, the *Diaphragma* or midriffe, ſmit upon by acride vapoures, and irritated as though there were ſome humour to bee expelled by coughing. Theſe ſame acride fumes aſſailing the orifice of the ventricle, cauſe either a hicketting, or elſe a fainting, according to the condition of their conſiſtence, groſſe or thin; theſe carryed up to the parts of the face cauſe an itching of the noſe, a darkeneſſe of the ſight, and a ſuddaine changing of the colour in the cheeks. Great wormes are worſe than little ones, red than white, living than dead, many than few, variegated than thoſe of one colour, as thoſe which are ſignes of a greater corruption. Such as are caſt forth bloody and ſprinkled with blood, are deadly, for they ſhew that the ſubſtance of the guts is eaten aſunder; for oft-times they corrode and perforate the body of the gut wherein they are conteined, and thence penetrate into divers parts of the belly, ſo that they have come forth ſometimes at the Navell, having eaten themſelves a paſſage forth, as *Hollerius* affirmeth. When as children troubled with the wormes draw their breath with difficulty, and waxe moiſt over all their bodies, it is a ſigne that death is at hand. If at the beginning of ſharpe feavers, round wormes come forth alive, it is a ſigne of a peſtilent feaver, the malignity of whoſe matter they could not endure, but were forced to come forth. But if they be caſt forth dead, they are ſignes of greater corruption in the humours, and of a more venenate malignity.

Why wormes of divers coloures are more dangerous.

CHAP. V.

What cure to bee uſed for the Wormes.

IN this diſeaſe there is but one indication, that is, the excluſion or caſting out of the wormes, either alive or dead, forth of the body, as being ſuch that in their whole kinde are againſt nature; all things muſt bee ſhunned which are apt to heap up putrefaction in the body by their corruption, ſuch as are crude fruits, cheeſe, milke-meats, fiſhes, and laſtly ſuch things as are of a difficult and hard digeſtion, but prone to corruption. Pappe is fit for children, for that they require moiſt things, but theſe ought to anſwer in a certaine ſimilitude to the conſiſtence and thickneſſe of milke, that ſo they may the more eaſily be concocted & aſſimulated, & ſuch only is that pap which is made with wheat flower, not crude, but baked in an oven, that the pappe made therewith may not be too viſcide nor thicke, if it ſhould onely bee boyled in a panne as much as the milke would require; or elſe the milke would bee too terreſtriall, or too wateriſh, all the fatty portion thereof being reſolved, the cheeſy and whayiſh portion remaining, if it ſhould boile ſo much as were neceſſary for the full boiling of the crude meate; they which uſe meale otherwiſe in pappe yeild matter for the generating of groſſe and viſcide humours in the ſtomacke, whence happens obſtruction in the firſt veines and ſubſtance of the liver, by obſtruction wormes breede in the guts, and the ſtone in the kidneyes and bladder. The patient muſt be fed often, and with meates of good juice, leſt the worms through want of nouriſhment, ſhould gnaw the ſubſtance of the guts. Now when as ſuch things breed of a putride matter, the patient ſhall be purged, and the putrefaction repreſt by medicines mentioned in our treatiſe of the plague. For the quick killing and caſting of them forth, ſyrupe of Succory, or of lemmons with rubarbe, a little Treacle, or Mithridate, is a ſingular medicine, if there be no feaver; you may alſo for the ſame purpoſe uſe this following medicine. ℞. *cornu cervi, pul. raſur. eboris, an.* ʒ i ß. *ſem. tanacet. & contra verm. an.* ʒ i. *fiat decoctio pro parva doſi, in colatura infunde rhei optimi,* ʒ i. *cinam.* ℈ i. *diſſolve ſyrupi de abſinthio* ℥ ß. make a potion, give it in the morning three houres before any broath. Oyle of Olives drunke, kills wormes, as alſo water of knot-graſſe drunke with milke, and in like manner all bitter things. Yet I could firſt wiſh them to give a glyſter made of milke, hony and ſugar, without oyles and bitter things, leſt ſhunning thereof, they leave the lower guts, and come upwards, for this is naturall to wormes, to ſhunne bitter things, and follow ſweet things. Whence you may learne, that to the bitter things which you give by the mouth, you muſt alwaies mixe ſweet things, that allured by the ſweetneſſe, they may devour them more greedily, that ſo they may kill them. Therefore I would

The generall indications of curing the wormes.

Wherefore, and wherewith ſuch as have the wormes muſt be purged.

Hartſ-horne good againſt the wormes.

Suppoſitories againſt the *Aſcarides.*

A plaſter againſt the wormes.

would with milke and Sugar, mixe the ſeeds of centaury, rue, wormewood, aloes, and the like: harts-horne is very effectuall againſt wormes, wherefore you may infuſe the ſhavings thereof in the water or drinke that the patient drinkes, as alſo to boile ſome thereof in his brothes. So alſo treacle drunke or taken in broth, killeth the wormes; purſlaine boiled in brothes, and deſtilled and drunke, is alſo good againſt the worms, as alſo ſuccory and mints, alſo a decoction of the leſſer houſe-leek and ſebeſtens given with ſugar before meate; it is no leſſe effectuall to put wormeseeds in their pap, and in roaſted apples, and ſo to give them it. Alſo you may make ſuppoſitories after this manner, and put them up into the fundament. ℞. *coralli ſub. albi, raſuræ eboris, cornu cervi uſti, ireos an.* ℈ ii. *mellis albi* ℥ ii ß. *aquæ centinodiæ q. ſ. ad omnia concorporanda, fiant Glandes*: let one be put up every day, of the weight of ʒ ii. for children; theſe ſuppoſitories are chiefly to bee uſed for *Aſcarides*, as thoſe which adhere to the right gut. To ſuch children as can take nothing by the mouth, you ſhall apply cataplaſmes to their navells made of the pouder of cummin ſeeds, the floure of lupines, worme-wood, ſoutherne wood, tanſie, the leaves of Artichokes, rue, the pouder of *coloquintida*, citron ſeeds, aloes, arſemart, horſe mint, peach leaves, *Coſtus amarus*, *Zedoaria*, ſope and oxe gall. Such cataplaſmes are oft times ſpred over all the belly, mixing therewith aſtringent things for the ſtrengthening of the part, as oile of myrtles, Quinces and maſtich; you may alſo apply a great onion hollowed in the midſt, and filled with Aloes and Treacle, and ſo roaſted in the embers, then beaten with bitter almonds, and an oxe gall. Alſo you may make emplaſters of bitter things, as this which followes. ℞. *fellis bubuli, & ſucci abſinthii, an.* ℥ ii. *colocyn.* ℥ i. *terantur & miſceantur ſimul, incorporentur cum farina lupinorum*: make hereof an emplaſter to be laid upon the Navell.

Liniments and ointments may bee alſo made for the ſame purpoſe to anoint the belly, you may alſo make plaſters for the navell of *Pillulæ Ruff.* anointing in the meane time the fundament with hony and ſugar, that they may bee chafed from above with bitter things, and allured downewards with ſweete things. Or elſe take wormes that have beene caſt forth, dry them in an iron pan over the fire, then pouder them, and give them with wine or ſome other liquor to bee drunke, for ſo they are thought quickly to kill the reſt of the wormes. Hereto alſo conduceth the juice of citrons, drunke with the oile of bitter almonds, or ſallade oile. Alſo ſome make bathes againſt this affect of wormewood, galls, peach leaves boiled in water, and then bathe the childe therein.

A caution.

A feaver ſometimes a ſymptome and ſometimes a diſeaſe.

But in curing the wormes, you muſt obſerve that this diſeaſe is oft times entangled with another more grievous diſeaſe, as an acute and burning feaver, a fluxe or ſcouring, and the like, in which (as for example ſake) a feaver being preſent and conjoyned therewith, if you ſhall give wormſeeds, old Treacle, myrrhe, aloes, you ſhall encreaſe the feaver and fluxe, for that bitter things are very contrary to the cure of theſe affects. But if, on the contrary, in a fluxe whereby the wormes are excluded, you ſhall give corrall, and the floure of Lentiles, you ſhall augment the feaver, making the matter more contumacious by dry and aſtringent things. Therefore the Phyſitian ſhall be carefull in conſidering whether the feaver bee a ſymptome of the wormes, or on the contrary it bee eſſentiall, and not ſymptomaticke, that this being knowne, hee may principally inſiſt in the uſe of ſuch medicines as reſiſt both affects, as purging and bitteriſh in a feaver and wormes, but bitter and ſomewhat aſtrictive things in the wormes and fluxe.

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CHAP.

CHAP. VI.

A ſhort deſcription of the Elephantiaſis *or Leproſie, and of the cauſes thereof.*

This diſeaſe is termed *Elephantiaſis* becauſe the skinne of ſuch as are troubled therewith, is rough, ſcabious, wrinckled and unequall, like the skin of an Elephant. Yet this name may ſeem to be impoſed thereon by reaſon of the greatneſſe of the diſeaſe. Some from the opinion of the Arabians have termed it *Lepra* or Leproſie (but unproperly, for the *Lepra* is a kinde of Scab and diſeaſe of the skinne, which is vulgarly called *Malum ſancti manis)* which word for the preſent we will uſe, as that which prevailes by cuſtome and antiquity. Now the Leproſie (according to *Paulus*) is a Cancer of the whole body, the which (as *Avicen* addes) corrupts the complexion, forme and figure of the members. *Galen* thinkes the cauſe ariſeth from the errour of the ſanguifying faculty, through whoſe default the aſſimulation in the fleſh and habite of the body is depraved, and much changed from it ſelfe, and the rule of nature. But *ad Glauconem*, hee defines this diſeaſe, An effuſion of troubled or groſſe blood into the veines and habit of the whole body. This diſeaſe is judged great, for that it partakes of a certaine venenate virulency, depraving the members and comelineſſe of the whole body. Now it appeares that the Leproſie partakes of a certaine venenate virulency by this, that ſuch as are melancholicke in the whole habit of their bodies, are not leprous. Now this diſeaſe is compoſed of three differences of diſeaſes. Firſt it conſiſts of a diſtemper againſt nature, as that which at the beginning is hot and dry, and at length the ebullition of the humours ceaſing, and the heat diſperſed, it becomes cold and dry, which is the conjunct cauſe of this ſymptome. Alſo it conſiſts of an evill compoſition or conformation, for that it depraves the figure and beauty of the parts. Alſo it conſiſts of a ſolution of continuity, when as the fleſh and skin are cleft in divers parts with ulcers and chops: the leproſie hath for the moſt part 3. generall cauſes, that is, the primitive, antecedent, & conjunct: the primitive cauſe is either from the firſt conformation, or comes to them after they are born. It is thought to be in him from the firſt conformation, who was conceived of depraved & corrupt menſtruous blood, & ſuch as enclined to melancholly; who was begot of the leprous ſeed of one or both his parents; for leprous perſons generate leprous, becauſe the principall parts being tainted and corrupted with a melancholy and venenate juice, it muſt neceſſarily follow that the whole maſſe of blood and ſeed that falls from it, and the whole body ſhould alſo be vitiated. This cauſe happens to thoſe that are already born, by long ſtaying & inhabiting in maritime countries, whereas the groſſe and miſty aire, in ſucceſſe of time, induceth the like fault into the humours of the body; for that, according to *Hippocrates*, ſuch as the aire is, ſuch is the ſpirit, and ſuch the humours. Alſo long abiding in very hot places, becauſe the blood is torrified by heate, but in cold places, for that they incraſſate, and congealing the ſpirits, doe after a manner ſtupefie, may bee thought the primitive cauſes of this diſeaſe. Thus in ſome places of *Germany* there are divers leprous perſons, but they are more frequent in *Spaine* and over all *Africa*, then in all the world beſide, and in *Languedoc*, *Provence* and *Guyenne*, are more than in whole *France* beſides. Familiarity, copulation, and cohabitation with leprous perſons, may be reckoned amongſt the cauſes thereof, becauſe they transferre this diſeaſe to their familiars by their breath, ſweat and ſpittle left on the edges of the pots or cuppes. This diſeaſe is alſo cauſed by the too frequent uſe of ſalt, ſpiced, acride and groſſe meates, as the fleſh of Swine, Aſſes, Beares, Pulſe, milke-meats; ſo alſo groſſe and ſtrong wines, drunkenneſs, gluttony, a laborious life, full of ſorrow and cares, for that they incraſſate, and as it were burne the blood. But the retention of melancholy excrements, as the ſuppreſſion of the hæmorrhoids, courſes, ſmall pockes and meazells, as alſo a quartaine feaver accuſtomed to come at ſet times; the drying up of old ulcers, for that they defile the maſſe of the blood with a melancholy droſſe and filth. Now you muſt underſtand that the cauſe of the leproſie by the retention of the ſuperfluities, happens becauſe the corrupt blood is not evacua-

Lib. 4. cap. 1.
Lib. 2. cap. 11.

There is a certaine hidden virulency in the Leproſie.

The primitive cauſe of a Leproſie.

How they may be leprous from their firſt conformation.

ted, but regurgitates over the whole body, and corrupts the blood that ſhould nouriſh all the members; wherefore the aſſimulative faculty cannot well aſſimulate by reaſon of the corruption and default of the juice, and thus in concluſion the Leproſie is cauſed. The antecedent cauſes are the humours diſpoſed to aduſtion and corruption into melancholy by the torride heat; for in bodies poſſeſſed with ſuch heat, the humours by aduſtion eaſily turne into melancholy, which in time acquiring the malignity and corruption of a virulent and venenate quality, yeelds a beginning and eſſence to the leproſie. The conjunct cauſes are the melancholy humors which are now partakers of a venenate and maligne quality, and ſpread over the whole habite of the body, corrupting and deſtroying it firſt by a hot and dry diſtemper, and then by a cold and dry, contrary to the beginnings of life. For hence inevitable death muſt enſue, becauſe our life conſiſts in the moderation of heate and moiſture.

The antecedent cauſe of a Leproſie.

The conjunct cauſe.

How it comes to be deadly.

Chap. VII.

The ſignes of a Leproſie, breeding, preſent, and already confirmed.

THe diſpoſition of the body and humors to a Leproſie is ſhewed by the change of the native and freſh colour of the face, by that affect of the face, which is commonly called *Gutta roſacea*, red & blackiſh ſuffuſions and puſtles, the falling away of the haires, a great thirſt, and a drineſſe of the mouth both by night & day, a ſtinking breath, little ulcers in the mouth, the change of the voice to hoarſeneſſe, a deſire of venery above nature and cuſtome. Now there are foure times of this diſeaſe, the beginning, encreaſe, ſtate and declenſion. The beginning is when as the malignity hath not yet gone further than the inner parts and bowells, wherupon the ſtrength muſt needs be more languid. The encreaſe is when as the virulency comes forth, & the ſigns & ſymptoms are every day encreaſed in number & ſtrength. The ſtate is when as the members are exulcerated. The declenſion is, when as the aſpect of the face is horride, the extreme parts fall away by the profundity and malignity of the ulcers, ſo that none, no not of the common ſort of people, can doubt of the diſeaſe. According to the doctrine of the Antients, wee muſt in ſearching out of the ſignes of this diſeaſe being preſent, have chiefe regard to the head. For the ſignes of diſeaſes more properly and truely ſhew themſelves in the face, by reaſon of the ſoftneſſe and rarity of the ſubſtance therof, and the tenuity of the ſkin that covers it; wherefore a blacke and aduſt humour diffuſed thereunder, eaſily ſhewes it ſelfe, and that not onely by the mutation of the colour, but alſo of the Character and bulke, and oft times by manifeſt hurting it. Wherefore you muſt obſerve in the head whether it have ſcaules, and whether in the place of thoſe haires that are fallen away, others more tender, ſhort and rare grow up, which is likely to happen through defect of fit nouriſhment to preſerve and generate haires, through corruption of the hairy ſcalpe that ſhould be ſtored with ſuch nouriſhment, and of the habit it ſelfe, and through the unfitneſſe thereof to containe haires; laſtly by the acrimony of the vapoures ſent up from the aduſt humours and entrailes, fretting aſunder the rootes of the haires. But if not onely the haire, but alſo ſome portion of the ſkin and fleſh about the rootes of the haire, come away by pulling, it is an argument of perfect corruption: let this therefore be the firſt ſign of a leproſie. II. A ſecond & very certain ſigne is, a numerous & manifeſt circumſcription of round and hard puſhes or puſtles under the eie-browes, & behind the eares and in ſeverall places of the face, reſembling round and hard kernells, occaſioned by the default of the aſſimulating faculty. The cauſe of this default is the groſſeneſſe of the flowing nouriſhment, by which meanes it being impact, and ſtopping in the ſtraitneſſe of the way, it growes round at it were compaſſed about in the place whereas it ſticks, and by the means of the crudity, for that it is not aſſimulated, and by delay, it is further hardned. The

The beginning of a Leproſie.

The encreaſe.

The ſtate.

The declenſion.

The firſt ſigne of the Leproſie.

third ſigne is,the more contract and exact roundneſſe of the eares, their groſſeneſſe,
and as it were grainy ſpiſſitude or denſeneſſe; the cauſe of their roundneſs is the conſumption
of the flaps & fleſhy part through want of nouriſhment,and exceſs of heat;
but the occaſion of their grainy ſpiſſitude is the groſneſſe of the earthy nouriſhment
flowing thither. The fourth ſign is a lion-like wrinkling of the forehead,which is the
reaſon that ſome terme this diſeaſe *morbus leoninus*; the cauſe hereof is the great drineſſe IIII. Why it is called *morbus leoninus*.
of the habit of the body,which alſo is the reaſon that the barke of an old oak is
rough and wrinkled. The fifth is,the exact roundneſſe of the eyes,and their fixt and V.
immoveable ſteddineſſe;verily the eyes are naturally almoſt round,yet they appeare
obtuſe and ſomewhat broad on the foreſide, but end in a *Conus* on the hind part, by
reaſon of the concourſe and figure of the muſcles and fat inveſting them. Therefore
theſe being conſumed either through defect of laudible nouriſhment, or elſe by the
acrimonie of the flowing humour, they are reſtored to their proper figure & roundneſs.
Now the muſcles which moved the eyes being conſumed,and the fat which facilitated
their motion waſted,it comes to paſſe that they ſtand ſtiffe and unmoveable,
being deſtitute of the parts yeelding motion,and the facility thereof. The ſixth ſigne
is,the noſtrils flat outwardly, but inwardly ſtrait and contracted, that is, an earthy VI.
& groſſe humour forced from within outwards,which ſwels the ſides or edges of the
noſtrils; whence it is,that the paſſages of the noſe appear as it were obſtructed by the
thickneſſe of this humour; but they are depreſſed and flatted by reaſon of the reſt of
the face and all the neighbouring parts ſwoln more than their wont;adde hereto that
the partition is conſumed by the acrimony of the corroding and ulcerating humour
ſent thither,which makes them neceſſarily to be depreſt, & ſend forth bloudy ſcabs.
The ſeventh,is the lifting up,thickneſſe and ſwelling of the lips,the filthineſſe,ſtinke VII.
and corroſion of the gums by acride vapours riſing to the mouth; but the lips of Leprous
perſons are more ſwolne by the internall heat burning and incraſſating the humours,
as the outward heat of the Sun doth in the Moores. The eighth ſigne is the VIII.
ſwelling & blackneſſe of the tongue, and as it were varicous veins lying under it; becauſe
the tongue,being by nature ſpongious and rare,is eaſily ſtored with excrementitious
humours,ſent from the inner parts unto the habit of the body: which ſame is
the cauſe why the grandules placed about the tongue above and below, are ſwolne
hard & round,no otherwiſe than ſcrophulous or meazled ſwine. Laſtly,all their face
riſeth in red bunches or puſhes,and is over-ſpread with a duskie and obſcure redneſs;
the eies are fiery, fierce and fixed, by a melancholick chachectick diſpoſition of the
whole body,manifeſt ſignes whereof appeare in the face by reaſon of the forementioned
cauſes; yet ſome leprous perſons have their faces tinctured with a yellowiſh,
others with a whitiſh colour, according to the condition of the humor,which ſerves
for a *Baſis* to the leprous malignity. For hence Phyſicians affirme that there are three
ſorts of Leproſies,one of a rediſh black colour,conſiſting in a melancholick humour;
another of a yellowiſh greene, in a cholericke humour; another in a whitiſh yellow,
grounded upon aduſt phlegme. The ninth ſigne is a ſtinking of the breath,as alſo of IX.
all the excrements proceeding from leprous bodies,by reaſon of the malignity conceived
in the humours. The tenth is,a hoarſneſſe,a ſhaking, harſh and obſcure voyce X.
comming as it were out of the noſe, by reaſon of the lungs, recurrent nerves, and
muſcles of the throttle tainted with the groſſeneſſe of a virulent and aduſt humour;
the forementioned conſtriction & obſtruction of the inner paſſage of the noſe; and
laſtly, the aſperity and inequality of the weazon by immoderate dryneſſe, as it happens
to ſuch as have drunk plentifully of ſtrong wines without any mixture. This
immoderate drineſſe of the muſcles ſerving for reſpiration makes them to bee trouled
with a difficulty of breathing. The eleventh ſigne is very obſervable, which is a XI.
Morphew or defædation of all the skin, with a dry roughneſſe and grainy inequality,
ſuch as appears in the skins of plucked geeſe,with many tetters on every ſide,a filthy
ſcab,and ulcers not caſting off onely a branlike ſcurfe,but alſo ſcailes and cruſts.
The cauſe of this dry ſcab,is the heat of the burning bowels & humours,unequally
contracting and wrinkling the skin, no otherwiſe than as leather is wrinkled by the
heat of the Sun or fire. The cauſe of the filthy ſcab & ſerpiginous ulcers,is the eating
and corroding condition of the melancholy humour, and the venenate corruption,

it alſo being the author of corruption, ſo that it may be no marvell if the digeſtive faculty
of the liver being ſpoyled, the aſſimulative of a maligne and unfit matter ſent
into the habit of the body cannot well nor fitly performe that which may be for the
XII. bodies good. The twelfth is, the ſenſe of a certain pricking, as it were of goads or needles
over all the skin, cauſed by an acride vapour hindred from paſſing forth, and
XIII. intercepted by the thickneſſe of the skin. The thirteenth is a conſumption and emaciation
of the muſcles which are betweene the thumbe and fore-finger, not onely by
reaſon that the nouriſhing and aſſimulating faculties want fit matter wherewith they
may repaire the loſſe of theſe parts, for that is common to theſe with the reſt of the
body, but becauſe theſe muſcles naturally riſe up unto a certaine mountanous tumor,
therefore their depreſſion is the more manifeſt. And this is the cauſe that the ſhoulders
of leprous perſons ſtand out like wings; to wit, the emaciation of the inner part
XIIII. of the muſcle *Trapezites*. The fourteenth ſigne is the diminution of ſenſe, or a numneſſe
over all the body by reaſon that the nerves are obſtructed by the thickneſſe of
the melancholick humour hindring the free paſſage of the animal ſpirit, that it cannot
come to the parts that ſhould receive ſenſe, theſe in the interim remaining free which
are ſent into the muſcles for motions ſake, and by this note I chiefly make tryall of
leprous perſons, thruſting a ſomewhat long and thick needle ſomewhat deep into the
great tendon endued with moſt exquiſite ſenſe, which runs to the heel, which, if they
do not well feele, I conclude, that they are certainly leprous. Now, for that they thus
loſe their ſenſe, their motion remaining entire, the cauſe hereof is that the nerves
which are diſſeminated to the skin are more affected, and thoſe that run into the muſcles
are not ſo much; & therefore when as you prick them ſomewhat deep, they feel
XV. the prick, which they do not in the ſurface of the skin. The fifteenth is the corruption
of the extreme parts poſſeſſed by putrefaction and a gangrene, by reaſon of the
corruption of the humours ſent thither by the ſtrength of the bowels, infecting with
the like tainture the parts wherein they remain: adde hereto that the animal ſenſitive
faculty is there decayed, and as often as any faculty hath forſaken any part, the reſt
XVI. preſently after a manner neglect it. The ſixteenth is, they are troubled with terrible
dreames, for they ſeeme in their ſleep to ſee divels, ſerpents, dungeons, graves, dead
bodies, and the like, by reaſon of the black vapours of the melancholie humour
troubling the phantaſie with black and diſmall viſions, by which reaſon alſo ſuch as
XVII. are bitten of a mad dog feare the water. The ſeventeenth is, that at the beginning and
in the increaſe of the diſeaſe they are ſubtle, crafty and furious by reaſon of the heat
of the humours & bloud; but at length in the ſtate and declenſion they become crafty
and ſuſpicious, the heat and burning of the bloud and entrailes decaying by little
and little; therefore then fearing all things whereof there is no cauſe, & diſtruſting of
their owne ſtrength they endeavour by craft, maliciouſly to circumvent thoſe with
XVIII. whom they deal, for that they perceive their powers to faile them. The eighteenth is,
a deſire of venery above their nature, both for that they are inwardly burned with a
ſtrange heat, as alſo by the mixture of flatulencies therewith (for whoſe generation
the melancholick humour is moſt fit) which are agitated, & violently carried through
the veins and genitall parts by the preternaturall heat; but at length when this heate
is cooled, and that they are fallen into a hot and dry diſtemper, they mightily abhor
venery, which then would bee very hurtfull to them, as it alſo is at the beginning of
the diſeaſe, becauſe they have ſmall ſtore of ſpirits and native heat, both which are
XIX. diſſipated by venery. The nineteenth is, the ſo great thickneſſe of their groſſe and livide
bloud, that if you waſh it, you may finde a ſandy matter therein, as ſome have
XX. found by experience, by reaſon of the great aduſtion and aſſation thereof. The twentieth
is, the languidneſſe & weakneſſe of the pulſe (by reaſon of the oppreſſion of the
vitall and pulſifick faculty by a cloud of groſſe vapours). Herewith alſo their urine
ſometimes is thick and troubled, like the urine of carriage beaſts, if the urenary veſſels
be permeable and free; otherwiſe it is thin, if there be obſtruction, which only ſuffers
that which is thin to flow forth by the urenary paſſages; now the urine is oftentimes
of a pale aſh-colour, and oft-times it ſmels like as the other excrements do in this diſeaſe.
Verily there are many other ſignes of the Leproſie, as the ſlowneſſe of the belly
by reaſon of the heat of the liver, often belchings by reaſon that the ſtomack is troubled

bled by the refluxe of a melancholy humour, frequent ſneeſing by reaſon of the fulneſſe of the braine; to theſe, this may be added moſt frequently, that the face and all the skin is unctuous or greaſie, ſo that water powred thereon, will not in any place adhere thereto: I conceive it is by the internall heat diſſolving the fat that lies under the skin, which therfore alwaies lookes as if it were greaſed or anointed therewith in leprous perſons. Now of theſe forementioned ſignes, ſome are univocall, that is, which truly and neceſſarily ſhew the Leproſie: otherſome are equivocall or common, that is, which conduce as well to the knowledge of other diſeaſes as this. To conclude, that aſſuredly is a Leproſie which is accompanied with all, or certainely the moſt part of theſe forementioned ſignes.

Why their faces ſeeme to bee greaſie.

CHAP. VIII.

Of Prognoſticks in the Leproſie; and how to provide for ſuch as ſtand in feare thereof.

THe Leproſie is a diſeaſe which paſſeth to the iſſue, as contagious almoſt as the plague, ſcarce curable at the beginning, uncurable when as it is confirmed, becauſe it is a *Cancer* of the whole body; now if ſome one *Cancer* of ſome one part ſhall take deepe root therein, it is judged uncurable. Furthermore the remedies which to this day have bin found out againſt this diſeaſe, are judged inferiour and unequall in ſtrength thereto. Beſides, the ſignes of this diſeaſe doe not outwardly ſhew themſelves before that the bowels be ſeazed upon, poſſeſſed and corrupted by the malignity of the humour, eſpecially in ſuch as have the white Leproſie, ſundry of which you may ſee about **Burdeaux**, & in little **Brittain**, who notwithſtanding inwardly burn with ſo great heat, that it will ſuddenly wrinkle and wither an apple held a ſhort while in their hand, as if it had laid for many daies in the Sun. There is another thing that increaſeth the difficulty of this diſeaſe, which is an equall pravity of the three principall faculties whereby life is preſerved. The deceitfull and terrible viſions in the ſleepe, and numneſſe in feeling, argue the depravation of the animall faculty; now the weakneſſe of the vitall faculty is ſhewed by the weakneſſe of the pulſe, the obſcurity of the hoarſe and jarring voice, the difficulty of breathing, and ſtinking breath; the decay of the naturall is manifeſted by the depravation of the work of the liver in ſanguification, whence the firſt and principall cauſe of this harme ariſeth. Now becauſe wee cannot promiſe cure to ſuch as have a confirmed Leproſie; and that we dare not do it to ſuch as have been troubled therewith but for a ſhort ſpace, it remains that we briefly ſhew how to free ſuch as are ready to fall into ſo fearefull a diſeaſe. Such therefore muſt firſt of all ſhun all things in diet and courſe of life whereby the bloud and humours may be too vehemently heated, whereof we have formerly made ſome mention. Let them make choice of meats of good or indifferent juice, ſuch as we ſhall deſcribe in treating of the diet of ſuch as are ſick of the plague; purging, bleeding, bathing, cupping, to evacuate the impurity of the bloud, and mitigate the heat of the liver, ſhall bee preſcribed by ſome learned Phyſician. *Valeſius de Tarenta* much commends gelding in this caſe, neither do I think it can be diſliked. For men ſubject to this diſeaſe may be effeminated by the amputation of their teſticles, and ſo degenerate into a womaniſh nature, and the heat of the liver boyling the bloud, being extinguiſhed, they become cold & moiſt, which temper is directly contrary to the hot & dry diſtemper of Leprous perſons; beſides the Leprous being thus deprived of the faculty of generation, that contagion of this diſeaſe is taken away which ſpreadeth and is diffuſed amongſt mankind by the propagation of their iſſue.

Why the Leproſie is uncurable.

The cure.

Their diet.

Gelding good againſt the Leproſie.

The End of the Twentieth Booke.

OF POYSONS, AND OF THE BITING OF A MAD DOGGE, AND THE BITINGS AND STINGINGS OF OTHER VENEMOUS CREATURES.

THE ONE AND TWENTIETH BOOK.

CHAP. I.

The cauſe of writing this Treatiſe of Poyſons.

FIVE reaſons have principally moved me to undertake to write this Treatiſe of poyſons, according to the opinion of the Ancients. The firſt is, that I might inſtruct the Surgeon what remedies muſt preſently be uſed to ſuch as are hurt by poyſons, in the interim whilſt greater meanes may bee expected from a Phyſician. The ſecond is, that hee may know by certaine ſignes and notes ſuch as are poyſoned or hurt by poyſonous meanes, and ſo make report thereof to the Judges, or to ſuch as it may concerne. The third is, that thoſe Gentlemen and others who live in the Countrey, and farre from Cities and ſtore of greater meanes, may learne ſomething by my labours by which they may helpe their friends bitten by an Adder, madde Dogge, or other poyſonous creature, in ſo dangerous, ſudden and uſuall a caſe. The fourth is, that every one may beware of poyſons, and know their ſymptomes when preſent, that being knowne, they may ſpeedily ſeeke for a remedie. The fifth is, that by this my labour all men may know what my good-will is, and how well minded I am towards the common wealth in generall, and each man in particular, to the glory of God. I doe not here ſo much arme malicious and wicked perſons to hurt, as Surgeons to provide to helpe and defend each mans life againſt poyſon; which they did not underſtand, or at leaſt ſeemed not ſo to doe, which taking this my labour in evill part, have maliciouſly interpreted my meaning.

What is to be accounted poyſon.

But now at length, that wee may come to the matter; I will begin at the generall diviſion of poyſons, and then handle each *ſpecies* thereof ſeverally: but firſt let us give this rule; That, Poyſon is that which either outwardly applyed or ſtruck in, or inwardly taken into the body, hath power to kill it, no otherwiſe, than meate well dreſt is apt to nouriſh it. For *Conciliator* writes, that the properties of poyſon are contrary to nouriſhments in their whole ſubſtance, for as nouriſhment is turned into bloud, and in each part of the body whereto it is applyed to nouriſh, by perfect aſſimulation is ſubſtituted in the place of that portion which flowes away each moment.

Thus on the contrary poyſon turnes our bodies into a nature like it ſelfe and venenate, for as every agent imprints the force and qualities thereof in the ſubject patient, thus poyſon by the immoderation of faculties in their whole nature contrary to us, changeth our ſubſtance into its nature, no otherwiſe than fire turneth chaffe in a moment into its owne nature, and ſo conſumes it. Therefore it is truly delivered by the Ancients, who have diligently pryed into the faculties of naturall things, that it is Poyſon that may kill men by deſtroying and corrupting their temper, and the compoſure and conformation of the body. Now all poyſons are ſaid to proceed either from the corupt aire, or from living creatures, plants and mineralls, or by an artificiall malignity in diſtilling, ſubliming and diverſly mixing of poyſonous and fuming things. Hence ariſe ſundry differences of poyſons; neither doe they all worke after the ſame manner; for ſome corrupt our nature by the unmeaſurableneſſe of the manifeſt and elementary qualities whereof they conſiſt, others from a ſpecifick and occult propertie. Hence it is that ſome kill ſooner than otherſome; neither is it true, that all of them preſently aſſaile the heart, but others are naturally at deadly ſtrife with other parts of the body, as *Cantharides* with the bladder, the ſea Hare with the lungs, the *Torpedo* with the hands, which it ſtupefieth, though the fiſhers rod bee betwixt them. Thus of medicines, there are ſome which are apt preſently to comfort and ſtrengthen the heart; others the brain, as *ſtæchas*; others the ſtomack, as Cinamon; Alſo there are ſome poyſons which work both waies, that is, by manifeſt and occult qualities, as *Euphorbium*; for that both by the exceſſive heate and the whole ſubſtance, or the diſcord of the whole ſubſtance with ours, corrupts our nature. An argument hereof is, that Treacle, which by its quality is manifeſtly hot, infringeth the force thereof, as alſo of all others of an occult property. Poiſons which work by an occult and ſpecifick property, do not therefore doe it, becauſe they are too immoderately hot, cold, dry, moiſt; but for that they are abſolutely ſuch, and have that eſſence from the ſtars and cœleſtiall influence, which is apt to diſſolve and deſtroy the ſtrength of mans body, becauſe being taken, but even in a ſmall quantity, yet are they of ſo pernicious a quality, that they kill almoſt in a moment. Now poyſons do not onely kill being taken into the body, but ſome being put or applyed outwardly; neither doe venimous creatures only harme by their ſtinging and biting, but alſo by their excrements, as ſpittle, bloud, the touch and breath.

The differences of poyſons.

All poyſons have not a peculiar Antipathy with the heart.

CHAP. II.

How poyſons being ſmall in quantity, may by their only touch cauſe ſo great alterations.

IT ſeemeth ſtrange to many, how it may come to paſſe, that poyſon, taken or admitted in a ſmall quantity, may almoſt in a moment produce ſo pernicious effects over all the body, and all the parts, faculties, and actions, ſo that being admitted but in a little quantity, it ſwels up the body into a great bigneſſe. Neither ought it to ſeeme leſſe ſtrange, how Antidotes and Counter-poyſons, which are oppoſed to poyſon, can ſo ſuddenly breake and weaken the great and pernicious effects thereof, being it is not likely that ſo ſmall a particle of poyſon or Antidote can divide it ſelfe into ſo many, and ſo far ſevered particles of our body. There are ſome (ſaith *Galen*) who thinke that ſome things by touch onely, by the power of their quality, may alter thoſe things which are next to them, and that this appeares plainly in the ſea *Torpedo*, as that which hath ſo powerfull a quality, that it can ſend it alongſt the fiſhers rod to the hand, and ſo make it become torpide or numbe. But on the contrary, Philoſophers teach, that accidents, ſuch as qualities are, cannot without their ſubjects remove and diffuſe themſelves into other ſubjects. Therefore *Galens* other anſwer is more agreeable to reaſon, that ſo many and great affects of poyſons and remedies ariſe either from a certaine ſpirit or ſubtle humidity; not truly, for that this ſpirit and ſubtle humidity may be diſperſed over the whole body and all the parts thereof which it affects,

Cap. 5. lib. 6. de locis affect.

fects, but that little, which is entred the body, as caſt in by the ſtroake of a Spider, or the ſting of a Scorpion, infects and corrupts all the next parts by contagion with the like quality, theſe others that are next to them, untill from an exceeding ſmall portion of the bloud, if the ſtroake ſhall light into the veines, it ſhall ſpread over the whole maſſe of bloud; or of phlegme, if the poyſon ſhall chance to come to the ſtomacke, and ſo the force thereof ſhall bee propagated and diffuſed over all the humours and bowels. The doubt of Antidotes is leſſe, for theſe being taken in greater quantity, when they ſhal come into the ſtomack, warmed by the heat of the place, they become hot, & ſend forth vapours, which ſuddenly diffuſed over the body by the ſubtlety of their ſubſtance, doe by their contrary forces dull and weaken the malignity of the poyſon. Wherefore you may often ſee when as Antidotes are given in leſſe quantity than is fit, that they are leſſe prevalent, neither doe they anſwer to our expectation in overcomming the malignity of the poyſon; ſo that it muſt neceſſarily follow that theſe muſt not onely in qualities, but alſo in quantiy bee ſuperiour to poyſons.

The true reaſon of the wondrous effects of poyſons.

CHAP. III.

Whether there be any ſuch poyſons as will kill at a ſet time?

TO the propounded queſtion; whether there may be poyſons which within a certaine and definite time (put caſe a moneth or yeare) may kill men, *Theophraſtus* thus anſwers; of poyſons, ſome more ſpeedily performe their parts, others more ſlowly, yet may you finde no ſuch as will kill in ſet limits of time, according to the will and deſire of men. For that ſome kill ſooner or later than others; they do not this of their owne or proper nature, as Phyſicians rightly judge, but becauſe the ſubject upon which they light, doth more or leſſe reſiſt or yeeld to their efficacie. Experience ſheweth the truth hereof; for the ſame ſort of poyſon in the ſame weight and meaſure given to ſundry men of different tempers and complexions, will kill one in an houre, another in ſixe houres, or in a day, and on the contrary will not ſo much as hurt ſome third man. You may alſo obſerve the ſame in purging medicines. For the ſame purge given to divers men in the ſame proportion, will purge ſome ſooner, ſome later, ſome more ſparingly, others more plentifully, and otherſome not at all; alſo with ſome it will worke gently, with otherſome with paine and gripings. Of which diverſity there can no other cauſe be aſſigned, than mens different natures in complexion & temper, which no man can ſo exactly know and comprehend, as to have certain knowledge thereof, as how much and how long the native heat can reſiſt and labour againſt the ſtrength of the poyſon, or how pervious or open the paſſages of the body may bee whereby the poyſon may arrive at the heart and principall parts. For in ſuch (for example ſake) as have the paſſages of their arteries more large, the poyſon may more readily and ſpeedily enter into the heart together with the aire that is continually drawn into the body.

No poyſons kill in a ſet time.

How poyſons come to kill ſooner or later.

CHAP. IIII.

Whether ſuch creatures as feed upon poyſonous things be alſo poyſonous, and whether they may be eaten ſafely and without harme?

DUcks, Storkes, Hernes, Peacocks, Turkies, and other birds, feed upon Toads, Vipers, Aſpes, Snakes, Scorpions, Spiders, Caterpillers, & other venemous things. Wherfore it is worthy the queſtioning, whether ſuch like creatures nouriſhed with ſuch food, can kill or poyſon ſuch perſons as ſhall afterward eat them? *Matthiolus* writes that all late Authors, who have treated of poyſons, to be abſolutely of this opinion, That men may ſafely and without any danger feed upon ſuch creatures, for that they convert the beaſts into

Such things as feed upon poyſon may be eaten without danger.

to their nature after they have eaten them, and on the contrary, are not changed by them. This reaſon though very probable, yet doth it not make theſe beaſts to be wholly harmeleſſe, eſpecially if they be often eaten or fed upon. *Dioſcorides* and *Galen* ſeeme to maintaine this opinion, whereas they write, that the milke, which is nothing elſe than the relented bloud, of ſuch beaſts as feed upon ſcammonie, hellebore, and ſpurge, purgeth violently. Therefore Phyſicians, deſirous to purge a ſucking childe, give purges to the nurſes, whence their milke becomming purging, becomes both meat and medicine to the childe. The fleſh of Thruſhes, which feed upon Juniper berries, ſavours of Juniper. Birds that are fed with worme-wood or Garlike, either taſt bitter, or have the ſtrong ſent of Garlike. Whitings taken with garlike, ſo ſmell thereof, that they will not forgoe that ſmell or taſte by any ſalting, frying or boyling, for which ſole reaſon, many who hate garlike, are forced to abſtain from theſe fiſhes. The fleſh of Rabbits that feed upon Pennyroyall and Juniper, ſavour of them; Phiſicians wiſh that Goats, Cows, and Aſſes, whoſe milke they would uſe for Conſumptions or other diſeaſes, ſhould bee fed ſome ſpace before, and every day with theſe or theſe herbs which they deeme fit for the curing of this or that diſeaſe. *Lib. de ſimp. facult.* For *Galen* affirmes that hee doubts not, but that in ſucceſſe of time the fleſh of creatures will be changed by the meats whereon they feed, and at length ſavour thereof. Therefore I do not allow that the fleſh of ſuch things as feed upon venemous things ſhould be eaten for food, unleſſe it bee ſome long ſpace after they have diſuſed ſuch repaſt, and that all the venome bee digeſted and overcome by the efficacy of their proper heat, ſo that nothing thereof may remaine in taſt, ſmell or ſubſtance, but bee all vaniſhed away. The occaſion of ſudden death in many. For many dye ſuddenly, the cauſe of whoſe deaths are unknowne, which peradventure was from nothing elſe, but the ſympathy and antipathy of bodies, for that theſe things cauſe death and diſeaſe to ſome, that nouriſh otherſome [according to our vulgar Engliſh proverbe; That which is one mans meate is another mans Poyſon.]

Chap. V.

The generall ſignes of ſuch as are poyſoned.

Common ſignes of ſuch as are poyſoned.

WEE will firſt declare what the generall ſignes of poyſon are, and then will we deſcend to particulars, whereby we may pronounce that one is poyſoned with this or that poyſon. We certainly know that a man is poyſoned, when as hee complaines of a great heavineſſe of his whole body, ſo that hee is weary of himſelfe; when as ſome horrid and loathſome taſte ſweats out from the orifice of the ſtomacke to the mouth and tongue, wholly different from that taſte that meat, howſoever corrupted, can ſend up: when as the colour of the face changeth ſuddenly, ſomewhiles to blacke, ſometimes to yellow, or any other colour, much differing from the common cuſtome of man; when nauſeouſneſſe with frequent vomiting, troubleth the patient, and that hee is moleſted with ſo great unquietneſſe, that all things may ſeeme to bee turned upſide downe. Wee know that the poyſon workes by the proper, and from the whole ſubſtance, when as without any manifeſt ſenſe of great heate or coldneſſe, the patient ſownes often with cold ſweats, for uſually ſuch poyſons have no certaine and diſtinct part wherewith they are at enmity, as *cantharides* have with the bladder. But as they worke by their whole ſubſtance, and an occult propriety of forme; ſo doe they preſently and directly aſſaile the heart, our eſſence and life, and the fortreſſe and beginning of the vitall faculty. Now will wee ſhew the ſignes whereby poyſons, that worke by manifeſt and elementary qualities, may be knowne. Signes of hot poyſons. Thoſe who exceed in heate, burne or make an impreſſion of heat in the tongue, the mouth, throate, ſtomacke, guts, and all the inner parts, with great thirſt, unquietneſſe, and perpetuall ſweats. But if to their exceſſe of heate they bee accompanyed with a corroding and putrefying quality, as Arſenicke, Sublimate, Roſe-ager or Ratſ-bane, Verdegreace, Orpiment, and the like, they then cauſe in the ſtomack ſtomacke and guts intolerable pricking paines, rumblings in the belly, and continuall and intolerable thirſt. Theſe are ſucceeded by vomitings, with ſweats ſomewhiles hot, ſomewhiles cold, with ſwounings, whence ſuddaine death enſues. Poyſons that kill by too great coldneſſe, induce a dull or heavie ſleepe, or drowzineſſe, from which you cannot eaſily rouze or waken them; ſometimes they ſo trouble the braine, that the patients performe many undecent geſtures and anticke trickes with their mouthes and eyes, armes and legges, like as ſuch as are franticke; they are troubled with cold ſweats, their faces become blackiſh or yellowiſh, alwayes ghaſtly, all their bodies are benummed, and they dye in a ſhort time unleſſe they be helped; poyſons of this kinde are Hemlock, Poppie, Nightſhade, Henbane, Mandrage. Dry poyſons are uſually accompanied by heate with moiſture, for although *ſulphur* bee hot and dry, yet hath it moiſture, to hold the parts together, as all things which have a conſiſtence have, yet are they called dry, by reaſon that dryneſſe is predominant in them: ſuch things make the tongue and throate dry and rough, with unquenchable thirſt; the belly is ſo bound, that ſo much as the urine cannot have free paſſage forth; all the members grow ſquallide by dryneſſe, the patients cannot ſleepe; poyſons of this kinde are Lytharge, Ceruſſe, Lime, Scailes of Braſſe, Filings of Lead, prepared antimony. On the contrary, moiſt poyſons induce a perpetuall ſleep, a fluxe or ſcouring, the reſolution of all the nerves and joints, ſo that not ſo much as the eyes may be faithfully conteined in their orbes, but will hang as ready to fal out; the extreme parts, as the hands, feet, noſe and ears corrupt & putrefie, at which time they are alſo troubled with thirſt by reaſon of their ſtrong heat, alwaies the companion of putrefaction, & oft times the author thereof: now when this commeth to paſſe, death is at hand. Very many deny that there can be any moiſt poyſons found, that is, ſuch as may kill by the efficacy of their humidity, becauſe there are no ſuch things to bee found, as may come to the fourth degree of moiſture. Yet there is an example that averres the contrary, which was of one, who ſleeping on the night, was bitten by a Serpent, as *Gilbertus Anglicus* affirmeth; for dying thereof, when as his ſervant, deſirous to awaken his Maſter out of his ſleepe, tooke him by the arme, all the fleſh being putrefied, fell off, and preſently the bones alſo fell aſunder, being deprived of their fleſh, which could not happen, unleſſe by exceſſe of the venemous humidity which lay hid in the teeth and ſpittle of the ſerpent. Alſo wee have found it noted by *Hippocrates*, that in a rayny, humide, and ſoutherly conſtitution of the yeare, it happened by the maligne violence of the venenate and putrefying humidity, that the fleſh of the armes and legges becomming rotten, fell away by peecemeale, and the bones remained bare; yea alſo and the bones themſelves in ſome, putrefyed and fell away: neither certainely doth the *Lues venerea* kill by any other meanes, than by a fretting and putrefying force of humidity, by whoſe efficacy the ſolidity of the bones is diſſolved; then much more the fleſh may bee tainted and conſumed by putrefaction.

Signes of cold poyſons.

Signes of dry poyſons.

Signes of moiſt poyſons.

A hiſtory.

Sect. 3. lib. 3. epid.

The *Lues venerea* kills by exceſſe of moiſture.

To theſe and ſuch poyſons which worke by a manifeſt and elementary faculty, when as they ſhall bee received into the body after what manner ſoever, you ſhall forthwith oppoſe their contraries, and if by chance it bee not manifeſt, what, and of what diſtinct kind of poyſon that is, you muſt know that ſuch poyſons as worke by occult properties, it is not by reaſon as yet found out how they will affect the body, but onely by experience. Therefore to theſe you muſt oppoſe their like antidotes, which may by their whole ſubſtance ſtrengthen the heart and vitall faculty, and withſtand the ſtrength of the poyſon. But to this our diſtinction of poyſons, working by a manifeſt and elementary quality, their opinion is contrary, who affirme that the venome of all poyſonous beaſts are therefore cold, for that ſuch as are bitten or ſtung with them, are forthwith felt to bee colder than a ſtone. And that ſerpents for fear of cold, when as winter is at hand, keep themſelves in holes and dens under ground, or elſe as vipers uſe to doe, lye under ſtones, under which, you may often finde them ſtiffe and numbe, and ſo unapt for motion, that you may eaſily take them up in your hand. But the coldneſſe that is perceived or felt in ſuch as are bitten or ſtung, is not occaſioned by the coldneſſe of the poyſon, but by the abſence of the naturall heate, withdrawing it ſelfe in the very inſtant of the ſtroake, from the ſurface

All poyſons are not cold.

Why ſuch as are poyſoned or ſtung, are cold.

face into the center of the body, both for the defence of the heart, as the principall part, as alſo for that there is nothing, which ſo much diſſipates, or ſo much oppugnes the vitall heat, as poyſon (of what kinde ſoever it be) doth.

Chap. VI.

How, or by what meanes to ſhunne, or eſchew Poyſons.

What ſuch as feare poyſoning muſt obſerve in their diet.

Why ſleepe is hurtfull.

Why and how vomit muſt be procured.

IT is a matter of much difficulty to avoyd poyſons, becauſe ſuch as at this time temper them, are ſo throughly prepared for deceit and miſchief, that they will deceive even the moſt wary and quick-ſighted; for they ſo qualifie their ingrate taſte and ſmell, by the admixture of ſweet and well ſmelling things, that they cannot eaſily bee perceived even by the skillfull. Therefore ſuch as feare poyſoning, ought to take heed of meates cooked with much art, very ſweete, ſalt, ſoure, or notably endued with any other taſte. And when they are oppreſt with hunger or thirſt, they muſt not eate nor drinke too greedily, but have a diligent regard to the taſte of ſuch things as they eate or drinke; beſides, before meat let them take ſuch things as may weaken the ſtrength of the poyſons; ſuch as is the fat broth of good nouriſhing fleſh meats; in the morning let them arme themſelves with treacle or mithridate, and conſerve of roſes, or the leaves of rue, a wallnut and dry figs; beſides, let him preſently drinke a little draught of Muskedine or ſome other good wine; when one ſuſpects hee hath taken any poyſon in meat or drinke, let him forbeare ſleeping. For beſides that the force of poyſon is oft times ſo rapid, that it conſumes our life in a ſhort ſpace, as fire doth ſtubble, as alſo for that it is drawne more inwardly into the ſecret paſſages of the body by ſleepe. Wherefore in ſuch a caſe it is better to procure vomit by drinking *Hydrӕleum* warme, or butter diſſolved in warme oyle, or a decoction of line, or fenugreeke ſeedes, or fat broth, for thus the received poyſon is alſo caſt forth therewith, or elſe the acrimony thereof retunded, and the belly looſed.

When and wherewith they ſhall be purged.

The cure of poyſoned wounds.

You may ſee this by daily experience, for cauſtickes, veſicatories, and the like acrid things being applyed to an anointed part, will not bliſter nor exulcerate the part. Neither doth the vomit conduce onely in this, that it excludeth the poyſon, but it ſhewes either by the taſte, ſmell, or colour, the kinde of the taken poyſon; ſo that then by uſing the proper Antidote, it may bee the more eaſily and ſpeedily reſiſted, yet notwithſtanding if you conceive that the poyſon have deſcended deeper into the Guts, you may with a glyſter draw away the reſt thereof which adheres to the coats of the Guts. But if the patient cannot vomit, then ſhall ſome purging medicine be given him forthwith, and ſuch as are thought more particularly to reſiſt poyſon, ſuch as are Agaricke, Aloes, the leſſer Centaury, Rubarbe and other things, according to the direction of the learned Phyſitian. Then ſhall you adminiſter glyſters made with *Caſsia*, fatty decoctions, ſheeps ſuet, or butter or Cowes milke, with the mucilages of Line ſeed, *pſilium* ſeeds, quince ſeeds, and other ſuch things as are uſually given in a Dyſentery, or bloody fluxe, that ſuch things may hinder the adheſion of the poyſon to the coates of the guts, and by their unctuouſneſſe retunde the acrimony of the poyſon, and mitigate if any thing ſhall already be ulcerated, and abſolutely defend the ſound parts from the maligne effects of the poyſon. But let this be a perpetuall rule, That the poyſon bee ſpeedily drawne backe by the ſame way it entred into the body; as, if it entred by ſmelling in at the noſtrills, let it bee drawne back by ſneeſing; if by the mouth into the ſtomack, let it be excluded by vomit; if by the fundament into the belly, then by gliſter; if by the privities into the wombe, then by *metrenchites* or injections made therinto; if by a bite, ſting or wound, let revulſion bee made by ſuch things as have a powerfull attractive faculty; for thus we make diverſions, that by theſe we may not onely hinder the poyſon from aſſailing the heart, but alſo that by this means we may draw it from within outwards. Wherfore ſtrong ligatures caſt about the armes, thighes and legges, are good in this caſe. Alſo large cupping glaſſes applyed with much flame to ſundry parts of the body, are good. Alſo bathes of warme water, with a decoction of ſuch things as reſiſt poyſon, as ſoutherne wood, calaminte, rue, betony, horehound, penny royall, bayes, *ſcordium*, ſmallage, ſcabious, mints, valerian, and the like, are good in this caſe. Alſo ſweates are good, being provoked ſo much as the ſtrength of the patient can endure. But if he be very wealthy, whom we ſuſpect poyſoned, it will bee ſafer to put him into the belly of an oxe, horſe or mule, and then preſently into another aſſoone as the former is cold, that ſo the poyſon may bee drawne forth by the gentle and vaporous heate of the new killed beaſt; yet doe none of theſe things without the adviſe of a Phyſitian, if it may conveniently be had.

CHAP. VII.

How the corrupt or venemous Ayre may kill a Man.

By how many, and what meanes the aire may be infected

THE aire is infected and corrupted by the admixture of maligne vapours, either ariſing from the unburied bodies of ſuch as are ſlaine in great conflicts, or exhaling out of the earth after earth-quakes, for the aire, long pent up in the cavities and bowells of the earth, and deprived of the freedome and commerce of the open aire, is corrupted, and acquires a maligne quality, which it preſently transferreth unto ſuch as meet therewith. Alſo there is a certaine malignity of the aire which accompanieth thunders, and lightnings, which ſavoures of a ſulphureous virulency, ſo that whatſoever wilde beaſtes ſhall devoure the creatures killed therewith, they become madde, and dye immediately; for the fire of lightning hath a farre more rapid, ſubtle, and greater force than other fires, ſo that it may rightly be termed a Fire of Fires.

How thunders and lightnings may infect the aire.

An argument hereof is, that it melteth the head of a ſpear, not harming the wood, and ſilver and gold, not hurting the purſe wherein it is conteined. Alſo the aire is infected by fumigations, which preſently admitted into the body and bowels by the mouth and noſe in reſpiration, by the ſkinne and arteries in perſpiration, doth eaſily kill the ſpirits and humours being firſt infected, and then within a ſhort ſpace after, the ſolid ſubſtance of the principall parts, & chiefly of the heart being turned into their nature, unleſſe the man be firſt provided for by ſneeſing, vomiting, ſweating, purging by the belly, or ſome other excretion. For that poyſon which is carryed into the body by ſmell is the moſt rapid & effectuall, by ſo much as a vapor or exhalation is of more ſubtle & quicklier piercing eſſence than an humor. Yet notwithſtanding, wilt thou ſay, it is not credible, that any can be kild by any vapor raiſed by the force of fire, as of a Torch, or a Warming-pan, for that the venenate quality of the thing that is burnt, is diſſipated and conſumed by the force of the fire, purging and cleanſing all things. This reaſon is falſly faigned to the deſtruction of the lives of careleſſe people; for ſulphureous brands kindled at a cleere fire, doe notwithſtanding caſt forth a ſulphureous vapour. Whether doe not *Lignum aloes* and Juniper, when they are burnt in a flame, ſmell leſſe ſweetly?

Whether the vapour that ariſeth from a burnt thing may poyſon one.

A hiſtory.

Pope *Clement*, the ſeventh of that name, the Uncle of our Kings Mother, was poyſoned by the fume of a poyſonous Torch that was carryed lighted before him, and dyed thereof. *Mathiolus* telleth, that there were two Mountebanks in the market place of *Sienna*, the one of which, but ſmelling to a poyſoned gilly-flower given him by the other, fell downe dead preſently.

A certaine man not long ago, when he had put to his noſe, and ſmelled a little unto a pomander, which was ſecretly poyſoned, was preſently taken with a *Vertigo*, and all his face ſwelled, and unleſſe that hee had gotten ſpeedy helpe by ſternutatories and other meanes, hee had died ſhortly after of the ſame kinde of death that Pope *Clement* did.

The ſafeſt preſervative againſt ſuch poyſons, is not to ſmell to them: moreover, ſome affirme, that there are prepared ſome poyſons of ſuch force, that being anointed but on the ſaddle, they will kill the rider; & others, that if you but anoint the ſtirrops

rops therwith, they will ſend ſo deadlie poyſonous a qualitie into the rider, through his boots, that he ſhall die therof within a ſhort time after: which things, though they be ſcarce credible, becauſe ſuch poyſons touch not the naked skin, yet have they an example in nature, whereby they may defend themſelves. For the *Torpedo* ſends a narcoticke, and certainelie deadlie force, into the arme, and ſo into the bodie of the Fiſher, the cords of the net being between them.

CHAP. VIII.

That every kinde of Poyſon hath its proper and peculiar Signes and Effects.

AS poyſons are diſtinct in *ſpecies*, ſo each *ſpecies* differs in their ſignes and effects; neither is it poſſible to find anie one kinde of poyſon, which may be accompanied or produce all the ſignes and effects of all poyſons, otherwiſe Phyſitians ſhould in vaine have written of the ſignes and effects of each of them, as alſo of their proper remedies & antidotes. For what kind of poyſon ſhall that be, which ſhall cauſe a burning heat in the ſtomack, bellie, liver, bladder & kidneies, which ſhall cauſe a hicketting, which ſhall cauſe the whole body to tremble and ſhake, which ſhall take away the voice and ſpeech, which ſhall cauſe convulſions, ſhall weaken the pulſificke facultie, which ſhall intercept the freedome of breathing, which ſhall ſtupefie and caſt into a dead ſleepe, which ſhall together, and at once cauſe a *Vertigo* in the head, dimneſſe in the ſight, a ſtrangling, or ſtoppage of the breath, thirſt, bleeding, feaver, ſtoppage of the urine, perpetuall vomiting, redneſſe, lividneſſe, and paleneſs of the face, reſolution of the powers, and manie other things, all which are cauſed by all ſorts of poyſon. Laſtly, no bodie will denie, but that hot poyſons may kill more ſpeedily than cold, for that they are more ſpeedily actuated by the native heat.

Hot poyſons kill ſooner than cold.

CHAP. IX.

The Effects of Poyſons from particular venemous things, and what Prognoſticks may thence bee made.

Lib. 2. cap. 27. The bites of all wild beaſts are virulent.

IT is the opinion of *Cornelius Celſus*, and almoſt of all the antients, That the bite of everie beaſt had ſome virulencie, but yet ſome more than otherſome. They are moſt virulent that are inflicted by venemous beaſts, as Aſpes, Vipers, Water-ſnakes, and all kindes of Serpents, Baſiliſkes, Dragons, Toads, Mad dogges, Scorpions, Spiders, Bees, Waſpes, and the like. They are leſſe maligne, which are of creatures wanting venome, as of Horſes, Apes, Cats, Dogges not mad, and manie other things, which though of their owne nature they are without poiſon, yet in their bites there is ſomething more dolorificke and ill natured, than in common wounds inflicted by other occaſions: I beleeve that in their ſlaver or *ſanies*, there is ſomething, I know not how to terme it, contrarie to our nature, which imprints a maligne qualitie in the ulcer, which alſo you may obſerve in the tearings or ſcratchings of ſuch creatures as have ſharpe clawes, as Lions and Cats. Moreover manie affirme that they have found by experience, that the bites of men are not altogether without virulencie, eſpecially of ſuch as are red haired and freckled, cheiflie when as they are angred; it is probable that the bites of other perſons want this malignitie, ſeeing that their ſpittle will cure ſmall ulcerations. Wherefore if there ſhall happen difficultie of cure in a wound, cauſed by a mans biting, which is neither red haired nor freckled, neither angrie; this happens not by meanes of the ſpittle, nor by anie maligne qualitie, but by reaſon of the contuſion, cauſed by the bluntneſſe of the teeth, not cutting, but bruiſing the part, for being not ſharp, they cannot ſo eaſily enter the fleſh, unleſſe by bruiſing and tearing, after the manner of heavie and blunt ſtroaks

The bites of a red haired man virulent.

ſtroaks and weapons, wounds being occaſioned by ſuch are more hard to bee cured, than ſuch as are made by cutting and ſharp weapons. But of the fore-ſaid bitings of venemous creatures, there are few which doe not kill in a ſhort ſpace, and almoſt in a moment, but principally if the poiſon be ſent into the bodie by a live creature, for in ſuch poiſon there is much heat; alſo there is therein a greater tenuity, which ſerves as vehicles thereto into what place or part ſoever of the bodie they tend, the which the poiſons taken from dead creatures are defective of. Wherefore ſome of theſe kill a man in the ſpace of an houre, as the poiſon of Aſpes, Baſiliskes and Toads; others not unleſſe in two or three daies ſpace, as of water Snakes; a Spider, and Scorpion require more time to kill, yet all of them admitted but in the leaſt quantity, doe in a ſhort ſpace cauſe great and deadly mutations in the bodie, as if they had breathed in a peſtiferous aire, and with the like violence, taint and change into their owne nature all the members and bowels, by which theſe ſame members do in the time of perfect health change laudible meats into their nature and ſubſtance. The place whereas theſe poiſonous creatures live, & the time, conduce to the perniciouſneſſe of the poiſon, for ſuch as live in drie, mountanous and ſun-burnt places kill more ſpeedily than ſuch as be in moiſt and mariſh grounds; alſo they are more hurtfull in winter than in ſummer; and the poiſon is more deadly which proceeds from hungry, angry and faſting creatures, than that which comes from ſuch as are full and quiet; as alſo that which proceeds from young things, chiefly when as they are ſtimulated to venery, is more powerfull than that which comes from old & decrepite; from females worſe than from males; from ſuch as have fed upon other venemous things, rather than from ſuch as have abſtained from them, as from ſnakes which have devoured toads, vipers which have fed upon ſcorpions, ſpiders & Caterpillers. Yet the reaſon of the efficacie of poyſons depends from their proper, that is, their ſubtle or groſſe conſiſtence, & the greater or leſſe aptneſſe of the affected body to ſuffer. For hot men that have larger & more open veins & arteries, yeeld the poiſon freer paſſage to the heart. Therefore thoſe which have more cold & ſtraight veſſels, are longer ere they die of the like poiſon; ſuch as are full, are not ſo ſoon harmed as thoſe that are faſting: for meats, beſides that by filling the veſſels, they give not the poiſon ſo free paſſage, they alſo ſtrengthen the heart by the multiplication of ſpirits, ſo that it more powerfully reſiſts pernicious venome. If the poiſon worke by an occult and ſpecifick propertie, it cauſeth the cure and prognoſtick to be difficult, and then muſt we have recourſe to Antidotes, as theſe which in their whole ſubſtance reſiſt poyſons, but principally to treacle, becauſe there enter into the compoſition thereof medicines which are hot, cold, moiſt and drie: whence it is, that it retunds and withſtands all poiſons, chiefly ſuch as conſiſt of a ſimple nature, ſuch as theſe which come from venemous creatures, plants and mineralls; and which are not prepared by the deteſtable art of empoiſoners.

Contuſed wounds harder to heale than ſuch as are cut.

Why treacle retunds the force of all ſimple poyſons.

CHAP. X.

What cure muſt bee uſed to the bitings and ſtingings of venemous beaſts.

Cure muſt ſpeedily bee uſed without any delay to the bites and ſtingings of venemous beaſts, which may by all meanes diſperſe the poyſon, and keepe it from entring into the body; for when the principall parts are poſſeſſed, it boots nothing to uſe medicines afterwards. Therefore the Ancients have propounded a double indication to leade us to the finding out of medicines in ſuch a caſe, to wit, the evacuation of the virulent and venenate humour, and the change or alteration of the ſame and the affected body. But ſeeing evacuation is of two ſorts, to wit, univerſall, which is by the inner parts, and particular, which is by the outward parts. We muſt begin at the particular, by ſuch topick medicines as are fit to draw out, and retund the venome; for we muſt not alwaies begin a cure with generall things, as ſome thinke, eſpecially in externall diſeaſes, as wounds, fractures, diſlocations, venemous bites and punctures. Wherefore

A double indication in the cure of venemous bites.

Lotions fit for venemous bites.

Lib. de theriaca.

Treacle outwardly applyed and inwardly taken good againſt venemous bites.

The force of *Echium.*

The efficacie of Cauteries againſt venemous bites.

The force of Precipitate againſt venemous wounds.

hereto as ſpeedily as you may, you ſhall apply remedies fit for the bites & punctures of venemous beaſts, as for example, the wounds ſhall bee preſently waſhed with urine, with ſea-water, *aqua vitæ*, or wine, or vineger wherein old treacle or muſtard ſhall be diſſolved. Let ſuch waſhing be performed very hot, and ſtrongly chafed in, and then leave upon the wound and round about it, linnen ragges, or lint ſteeped in the ſame liquor. There be ſome who thinke it not fit to lay treacle thereto, becauſe, as they ſay, it drives the poyſon in. But the authority of *Galen* convinceth that opinion, for he writeth that if treacle be applyed to this kind of wounds before that the venome ſhall arrive at the noble parts, it much conduceth. Alſo reaſon confutes it; for vipers fleſh enters the compoſition of treacle which attracts the venome by the ſimilitude of ſubſtance, as the Load-ſtone draweth iron, or Amber ſtrawes. Moreover, the other ſimple medicines which enter this compoſition, reſolve and conſume the virulencie and venome, and being inwardly taken, it defendeth the heart and other noble parts, and corroborateth the ſpirits. Experience teacheth that mithridate fitly given in the ſtead of treacle worketh the like effect. The medicines that are taken inwardly and applyed outwardly for evacuation, muſt bee of ſubtle parts, that they may quickly inſinuate themſelves into every part to retund the malignity of the poyſon; wherefore garlike, onions, leeks, are very good in this caſe, for that they are vaporous; alſo *ſcordium*, rue, *dictamnus*, the leſſer Centaury, horehound, rocket, the milkie juice of unripe figs, and the like, are good; there is a kind of wilde bugloſſe amongſt all other plants, which hath a ſingular force againſt venemous bites, whence it is termed *Echium* and *viperinum*, and that for two cauſes; the firſt is, becauſe in the purple flowers that grow amongſt the leaves, there is a reſemblance to the head of a viper or adder. Another reaſon is, becauſe it heales the biting of a viper not onely applyed outwardly, but alſo helpeth ſuch as are bitten, being drunke in wine, yea, and will not ſuffer thoſe that have lately drunke thereof to bee bitten at all. Wilde time hath the like effect; though theſe oft-times agree with the poyſon in quality as in heate, yet doe they helpe in diſcuſſing and reſolving it: yet, as much as wee may, wee muſt labour to have evacuation and alteration together. It is moſt convenient, if the part affected will permit, to apply large cupping-glaſſes with much flame and hornes; alſo ſucking is good, the mouth being firſt waſhed in wine wherein ſome treacle is diſſolved, and with oile, leſt any thing ſhould adhere thereto, for it will hinder it, if ſo be the mouth bee no where ulcerated. It is good alſo to apply horſe-leaches; ſome wiſh to apply to the wound, the fundaments of hens or turkies that lay egges, for that ſuch are opener behinde, firſt putting ſalt upon them that they may gape the wider, ſhutting their beaks and opening them now & then leſt they ſhould be ſtifled, and ever and anon to ſubſtitute others in ſtead of ſuch as die or are ſuffocated; for thus it is thought the poyſon is drawne forth, and paſſeth into the bird by the fundament. There bee others which had rather apply to the wound live birds cut aſunder in the midſt, and ſo laid to hot, for that they gheſſe theſe reſiſt poyſon by a naturall diſcord. But certainely it is by their heate whereby they doe not onely digeſt toads, aſpes, vipers, ſcorpions and other venemous things, but alſo weare aſunder and ſoften ſand, ſtones, and moſt dry and ſtony ſeeds in their gizzards; wherefore we muſt think them very good to draw out the poyſon and diſſipate it. But nothing is ſo forcible to diſperſe and retund the venome, as the impreſſion of cauteries, eſpecially actuall, for a hot iron workes more effectually and ſpeedily, and cauſeth an ulcer which will remaine open a longer time. Wherefore to cauſe the ſpeedier falling away of the eſchar, you ſhall ſcarifie it to the quick, and then plentifully anoint the place. For thus the poyſon will the ſooner paſſe forth. But this muſt bee done before the poyſon enters far into the body, for otherwiſe Cauteries will not only do no good, but further torment the patient, and weaken him to no purpoſe. Let drawing plaſters be laid to the wound & neighbouring parts, made of *Galbanum*, turpentine, blacke pitch, and other gummy and reſinous things. After the falling away of the Eſchar, *baſilicon* ſhall bee applyed, quickned with a litle Precipitate, for it is very effectuall in theſe caſes, for that it draweth forth the virulent *ſanies* out of the bottome of the wound, neither doth it ſuffer the wound to bee cloſed ſpeedily. To which purpoſe they put in a piece of of a ſpunge, or a roote of Gentian or Hermodactyll,

ctyll, or ſome acride medicine, as *ægyptiacum* or Precipitate mixed with the powder of Alume, or a cauſtick beaten to powder. But you muſt alwaies obſerve this, that with your ointments you muſt alwaies mixe ſome Treacle or Mithridate, or the juice of *hypericon*, or the like, which have power to attract and diſperſe the poyſon, and cleanſe the ulcer; yet if too vehement heat ſhall cauſe ſuch paine as is likely to bring a gangrene by the diſſipation of the ſpirits, then neglecting the cure of the proper diſeaſe for a time, wee muſt labour to correct the ſymptome. But in this caſe you muſt obſerve this rule, that you let no bloud, give no purging medicine, nor glyſter, nor vomit, nor uſe no bath, nor other thing that may procure ſweat, untill three daies be paſt after the bite or ſting. In the meane ſpace, let the patient ſhun all manner of labour, but chiefely venery, leſt by cauſing an agitation of the humours, the poyſon get ſooner to the heart. Therefore then it is time to uſe univerſall evacuations, when as you ſhall ſuſpect that the poyſon is diffuſed over the veines and whole inner part of the bodie beſides. Before you ſhall give nothing, unleſſe medicines of Treacle or Mithridate and the like things, which have a faculty to reſiſt poyſon, and ſtrengthen the whole body by their benigne and vitall vapour, although their ſubſtance goe no further than the ſtomack. Thus pills when they are ſwallowed, though they goe no further than the ſtomacke, yet doe they draw matter out of the joints and head; and ſtrong glyſters, though they paſſe no further than the guts, yet by their quality diffuſed further with the vapour, they draw from the moſt diſtant parts; yet you muſt give an Antidote, not onely more powerfull than the poyſon in quality, but alſo greater in quantitie, that ſo it may the more eaſily overcome and expell the poyſon. Wherefore you muſt give it twice in a day, and continue it ſo long untill you ſhall know that the ſtrength of the poyſon is weakned and overcome by the remiſſion and decay of the maligne ſymptomes. Yet in the meane while, you muſt not neglect the diſtemper cauſed in the part by the poyſon, but muſt rather correct it by the application of remedies contrary to the diſtemper, as by cold things, if great heat afflict the affected part and whole bodie; by hot things on the contrary, if it ſeeme as cold as a ſtone, which oft-times happens. And let thus much ſuffice for the generall cure of poyſons: now will we come to their particular cure.

When hot things are not convenient for poyſoned wounds.

Antidotes muſt be given in great quantities.

CHAP. XI.

Why dogges ſooner become mad than other creatures, and what bee the ſignes thereof.

DOgges become mad ſooner than other creatures, becauſe naturally they enjoy that temper and condition of humours which hath an eaſie inclination to that kinde of diſeaſe, and as it were a certaine diſpoſition, becauſe they feed upon carrion and corrupt, putride and ſtinking things, and lap water of the like condition; beſides the trouble and vexation of loſing their maſters, makes them to runne every way, painfully ſearching and ſmelling to every thing, and neglecting their meat. A heating of the bloud enſues upon this paines, and by this heate it is turned into a melancholy, whence they become madde. But yet dogges doe not alway become mad by meanes of heat, but alſo by occaſion of cold, that is, by contrary cauſes, for they fall into this diſeaſe not onely in the dog-daies, but alſo in the depth of winter. For dogges abound with melancholike humours, to wit, cold and drie. But ſuch humours as in the ſummer through exceſſe of heate, ſo in the depth of winter by conſtipation and the ſuppreſſion of fuliginous excrements, they eaſilie turn into melancholie. Hence followes a very burning and continuall feaver, which cauſeth or bringeth with it a madneſſe. Adde hereto, that in the depth of winter the heate which is contained within is redoubled, and in like manner as the ſcorching heate in ſummer, it breeds and turnes the humours into melancholie. Alſo dogges become madde by contagion, as ſuch as are bitten by another madde dogge. A mad dog hath ſparkling and fierie eies, with a fixed looke, cruell and a ſquint, hee carries his head heavily, hanging downe towards the ground, and ſomewhat on one ſide,

Dogs naturally ſubject to madneſſe.

Dogs become mad, not onely in the heat of ſummer, but alſo in the depth of winter.

hee gapes, and thruſts forth his tongue, which is livide and blackiſh; and being ſhort breathed, caſts forth much filth at his noſe, and much foaming matter at his mouth; in his gate, as if he ſuſpected and feared all things, he keepeth no one or certain path, but runs one while to this ſide, another while to that, and ſtumbling like one that is drunke, he oft-times falleth downe on the ground; he violently aſſailes whatſoever he meets withall, whether it bee man, tree, wall, dog, or any thing elſe; other dogs ſhun him, and preſently ſent him a farre off. But if another unawares chance to fall foule on him, he yeelds himſelfe to his mercy, fawnes upon him, and privily labours to get from him, though hee be the ſtronger & greater. Hee is unmindfull of eating and drinking, he barkes not, yet he bites all he meets without any difference, not ſparing his maſter, as who at this time hee knowes not from a ſtranger or enemie. For it is the property of melancholie to diſturbe the underſtanding, ſo that ſuch perſons as are melancholike, doe not onely rage againſt, and uſe violence to their friends and parents, but alſo upon themſelves. But when as he ſees water, he trembles and ſhakes, and his haires ſtands up on end.

Why melancholike perſons hurt themſelves.

Chap. XII.

By what ſignes we may know a man is bitten of a mad dog.

The bite of a mad dog not very painefull at the firſt.

IT is not ſo eaſie at the firſt to know a man that is bitten with a mad dogge; and principally for this reaſon, becauſe the wound made by his teeth cauſeth no more pain than other wounds uſually do; contrary to the wounds made by the ſting or bite of other poyſonous creatures, as thoſe which preſently after they are inflicted, cauſe ſharpe paine, great heat, ſwelling and abundance of other maligne accidents, according to the nature of the poyſon; but the malignity of the bite of a mad dogge appeares not before that the venome ſhall invade the noble parts. Yet when you are ſuſpicious of ſuch a wound, you may acquire a certaine knowledge and experience thereof by putting a piece of bread into the quitture that comes from the wound. For if a hungry dog neglect, yea more fly from it, and dare not ſo much as ſmell thereto, it is thought to bee a certaine ſigne that the wound was inflicted by a madde dogge. Others adde, That if any give this piece of bread to hens, that they will die the ſame day they have eaten it; yet this latter, I making experiment thereof, failed, for devouring this virulent bread, they became not a jot the worſe. Wherefore I think the former ſigne to be the more certaine, for dogs have a wonderfull and ſure ſmelling faculty, whereby they eaſilie ſent and perceive the malignitie of the like creature. But when as the raging virulencie hath invaded the noble parts, then the patients, becomming ſilent and ſorrowfull, thinke of many things, and at the beginning make a noiſe with their teeth; they make no anſwer to the purpoſe, they are more teſtie than ordinarie, and in their ſleepes they are troubled with dreames, and ſtrange phantaſies, and fearfull viſions, and laſtly, they become affraid of the water. But after that the poiſon hath fixed it ſelfe into the ſubſtance of the noble parts, then all their faculties are diſturbed, all the light of their memorie, ſenſes, reaſon and judgement is extinguiſhed. Wherefore becomming ſtarke mad, they know not ſuch as ſtand by them, nor their friends, no nor themſelves, falling upon ſuch as they meet withall, & themſelves with their teeth, & nailes & feet. Often twitchings like convulſions do ſuddenly riſe in their limbs; I judge them occaſioned by extraordinary drineſs, which hath as it were wholly drunk up all the humiditie of the nervous parts; there is a great drineſſe of the mouth with intolerable thirſt, yet without any deſire of drink, becauſe the mind being troubled, they become unmindful & negligent of ſuch things as concerne them, and are needful for them; the eyes look fierie & red, & all the face is of the ſame colour; they ſtill think of dogs, and ſeem to ſee them, yea and deſire to bark and bite juſt after the maner of dogs; I conjecture that the virulent humour hath changed all the humours & the whole body into the like nature, ſo that they think themſelves alſo dogs; whence their voice becomes hoarſe by much endevouring to barke, having forgot all decen-

Signes of the bite of a mad dogge.

Signes by which you may gather that the noble parts are tainted.

Why men becomming mad barke like dogs.

cie, like impudent dogs, to the great horrour of the beholders. For their voice growes hoarſe by reaſon of the great dryneſſe of the *aſpera arteria*; they ſhun the light, as that which is enemy to melancholy, wherewith the whole ſubſtance of the braine is repleniſhed; on the contrary, they deſire darkeneſſe, as that which is like and friendly to them. But they are affraid of the water (though good to mitigate their great diſtemper of heat and drineſſe) and they fly from looking-glaſſes, becauſe they imagin they ſee dogs in them, whereof they are much affraide, by reaſon whereof they ſhun the water and all polite and cleare bodies which may ſupply the uſe of a looking-glaſſe; ſo that they throw themſelves on the ground, as if they would hide themſelves therein, leſt they ſhould be bitten againe: for they affirme that he which is bitten by a mad dog, alwaies hath a dog in his minde, and ſo remaines fixed in that ſad cogitation. Wherefore thinking that he ſees him in the water, he trembles for feare, and therefore ſhuns the water. Others write that the body by madneſſe becommeth wondrous dry, wherefore they hate the water, as that which is contrary thereto, being abſolutely the moiſteſt element, and ſo they ſay that this is the reaſon of their fearing the water. *Ruffus* writes that madneſſe is a kinde of melancholie, and that feare is the proper ſymptome thereof, according to *Hippocrates*; wherefore this or that kind of melancholie begets a feare of theſe or theſe things, but chiefly of bright things, ſuch as looking-glaſſes and water, by reaſon that melancholie perſons ſeeke darkeneſſe and ſolitarineſſe, by reaſon of the black corruption of the humour wherewith they abound. They fall into cold ſweats, a fomie, ſtinking and greeniſh matter flowes from the ulcer, by reaſon of the heat of the antecedent cauſe and ulcerated part. The urine moſt commonly appeares watriſh, by reaſon that the ſtrainers, as it were, of the kidnies, are ſtraitned by the heat and drineſſe of the venome. Yet ſometimes alſo it appears more thick and black, as when nature powerfully uſing the expulſive facultie, attempts to drive forth by urine the melancholy humour, the ſeat of the venome. Alſo ſometimes it is wholly ſuppreſt, being either incraſſated by hot dryneſſe, or elſe the mind being carried other waies, and forgetfull of its owne duty, untill at length the patients, vexed by the cruelty of ſo many ſymptomes, and overcome by the bitterneſſe of pain, die frantick, by reaſon that medicines have not been ſpeedily and fitly applyed. For few of thoſe who have uſed remedies in time, have periſhed of this diſeaſe.

Why they ſhun the light.

Why they are affraid of the water.

Aphor. 25. ſect. 6.

The bite of a mad dog taken in hand in time, is for the moſt part curable.

CHAP. XIII.

Prognoſticks.

WE cannot ſo eaſily ſhun the danger we are incident to by mad dogs, as that of other beaſts, by reaſon he is a domeſtick creature, and houſed under the ſame roofe with us. The virulency that reſides in his foame or ſlaver is hot and dry, maligne, venenate and contagious, ſo that it cauſeth a diſtemper like it ſelfe, in the body whereto it ſhall apply it ſelfe, and ſpread it ſelfe over the whole body by the arteries; for it doth not onely hurt when as it is taken in by a bite or puncture, but even applyed to the skin, unleſſe it be forthwith waſhed away with ſalt water or urine. Neither doth this venome hurt equally or at all times alike, for it harms more or leſſe, according to the inclination of the aire to heat or cold, the depth of the wound, the ſtrength of the patients body, and the ill humours thereof, and their diſpoſition to putrefaction, the freedome and largeneſſe of the paſſages. Now maligne ſymptomes happen ſooner or later, as in ſome about the fourtieth day, in others about ſixe moneths, and in others a yeare after. There be ſome who thereupon are troubled with the falling ſickneſſe, and at length grow mad: ſuch as fall into a feare of the water, never recover. Yet *Avicen* thinks their caſe is not deſperate, if as yet they can know their face in a glaſſe; for hence you may gather, that all the animall faculties are not yet overthrowne, but that they ſtand in need of ſtrong purgations, as we ſhall ſhew hereafter. *Aëtius* tels that there was a certaine Phyloſopher, who taken with this diſeaſe and a feare of water, when as hee deſcended with a great courage unto the bath, and in the water beholding the ſhape of the dog that bit him, hee made a ſtand, but aſhamed thereof, he forthwith cryed out,

The venome of a mad dog applied outwardly only, may cauſe madneſſe.

Whether the *Hydrophobia* or feare of water be incurable.

A hiſtory.

Quid cani cum Balneo? (*i*) What hath a dog to doe with a Bath? which words being uttered, he threw himſelfe forcibly into the Bath, and fearleſly dranke of the water thereof, and ſo was freed from his diſeaſe together with his erroneous opinion. It is a deadly ſigne to tumble themſelves on the ground, to have a hoarſe voice, for that is an argument that the weazon is become rough by reaſon of too exceſſive dryneſſe. Finally, the principall parts being poſſeſſed, there is no recovery or life to be hoped for. Men may fall mad, though they bee not bit by a mad dog. For as the humours are often inflamed of themſelves, and cauſe a *Cancer* or Leproſie, ſo do they alſo madneſſe in melancholie perſons. The bites of vipers and other venemous creatures cauſe not like ſymptomes to theſe that come by the biting of a mad dog, becauſe they die before ſuch can come forth or ſhew themſelves. Great wounds made by mad dogs are not equally ſo dangerous as little, for from the former, great plenty of venemous matter flowes out, but in the latter it is almoſt all kept in.

CHAP. XIIII.

What cure muſt be uſed to ſuch as are bitten by a mad dog.

A hiſtory.

The force of Sorrell.

The force of Docks.

A hiſtory.

THis caſe alſo requires ſpeedy remedies, for ſuch things are in vaine which come long after the hurt. The Lawyer *Baldus* experienced this to his great harme; for being by chance lightly bit in the lip by a little dog wherwith he was delighted, not knowing that he was mad, & neglecting the wound, by reaſon of the ſmallneſſe thereof, after ſome foure moneths ſpace, he died mad, having then in vaine aſſayed all maner of medicines. Wherefore obſerving theſe things both for evacuation, as alſo for alteration, which we have formerly mentioned in the generall cure of wounds inflicted by the bite or ſting of venemous creatures, and by all the meanes there ſpecified, we muſt draw forth the venome; and if the wound be large, then ſuffer it to bleed long and much, for ſo ſome part of the poyſon will be exhauſted; if it be not great, it ſhall be enlarged by ſcarification, or an occult cauterie, neither ſhall it be healed or cloſed up at the ſooneſt, till fourty daies be paſſed. Sorrel beaten and applied to the wound, and the decoction thereof taken inwardly, is very effectuall in this caſe, as *Aëtius* affirmes. To the ſame purpoſe you may with good ſucceſſe make a lotion and friction with muſtard diſſolved in urine or vinegar, leaving upon the wound a double cloth moiſtned in the ſame decoction: laſtly, all acride, biting and very attractive medicines are convenient in this caſe. Wherefore ſome apply Rocket boyled and beaten with butter and ſalt; others take the flowre of *Orobus*, and temper it with hony, ſalt and vinegar, and apply it hot. Horſe-dung boyled in ſharpe vinegar, or brimſtone beaten to powder and tempered with ones ſpittle, is good. Alſo black pitch melted with ſome ſalt, and a little *Euphorbium* mixed therewith and ſo applied, is good. Some write, that the haires of the dogge whoſe bite cauſed the madneſſe, applyed by themſelves, by their ſympathie or ſimilitude of ſubſtance draw the venome from within outwards; for ſo a Scorpion beaten and applied to the place whereas it ſtung, by drawing out the poyſon that it ſent in, reſtores the patient to health, both theſe by often experience are affirmed to have certaine event. Others chaw unground wheat, and lay it upon the wound, others roaſt beanes under hot embers, then huske them and cleave them, and ſo apply them. Alſo the wound may be wholeſomely waſhed and fomented with a decoction of Docks, and then the herb beaten may be applyed thereto; alſo the patient may drinke the decoction; and by this one remedy *Aëtius* affirmes that he hath recovered divers; for thus it moves urine plentifully, which is thought much to conduce to the cure of this diſeaſe. There be ſome who apply the leaves of betony and nettles beaten with common ſalt; others make a medicine to the ſame purpoſe and after the ſame manner of an Onion, the leaves of Rue and ſalt. Yet the reſt are exceeded by Treacle diſſolved in *aqua vitæ* or ſtrong wine, and rubbed hard upon the part, ſo that the bloud may follow, laying upon the wound when you have wiped it, clothes dipped in the ſame medicine, then preſently apply garlike or onions beaten with common ſalt and turpentine: by this onely remedy I freed one of the daughters of *Madamoiſelle de Gron* from the ſymptomes of madneſſe, and healed the wound, when as a mad dog had bit her grievouſly in the calfe of the right leg. Alſo it is good preſently to eate garlick with bread, and then to drinke after it a draught of good wine, for garlicke by its ſpirituous heate will defend the noble parts from poyſon. There bee ſome who wiſh to eate the roſted liver of the dog that hurt them, or elſe the liver of a goat, of which remedies as yet I have had no experience. Others preſcribe a dram of the ſeeds of *Agnus caſtus* to be drunke with wine and butter. Others the powder of river-crabs, burnt and drunke in wine. Or, ℞. *rad. gentianæ* ʒii. *aſtacorum fluviatilium in fumo combuſt. & in pollinem redact.* ʒiii. *terræ ſigill.* ℥ß. *miſce.* give ʒi of this ſame powder in the decoction of river-crabs, & let them drink thereof oft at ſundry times. Many have caſt themſelves into the ſea, neither have they thence had any helpe againſt madneſſe, as *Ferrand Pozet* the Cardinall teſtifieth in his booke of poyſons; wherefore you muſt not relie upon that remedie, but rather you muſt have recourſe to ſuch things as are ſet downe in the books of Phyſicians, and approved by certaine and manifold experience. But ſeeing that no poyſon can kill, unleſſe it be taken or admitted into the body, we muſt not fear any harme by ſprinkling our bodies with the *ſanies* of a mad dogge, viper, toad, or any other ſuch like venemous creature, if ſo bee that it be preſently wiped or waſhed cleane away.

A hiſtory.

Leaping into the ſea no certaine remedy againſt madneſs.

CHAP. XV.

What cure muſt be uſed to ſuch as feare the water, but yet are able to know themſelves in a glaſſe.

The force of Antimony againſt madneſs.

Such as have not their animal faculty as yet orecome by the malignity of the raging venome, muſt have ſtrong purgations given them. Wherefore, if in any caſe Antimonie bee uſefull, then is it in this, as that which cauſeth ſweats, looſeth the belly, and procures vomiting. For it is a part of extreme and dangerous madneſſe to hope to overcome the cruel malignity of this poyſon already admitted into the bowels, by gentle purging medicines. Aſſuredly, ſuch and ſo great danger is never overcome without danger. Bathes alſo conduce, which may diſperſe and draw forth the poyſon by cauſing ſweats. Alſo many and frequent treacle potions are good, to retund the venome, and ſtrengthen the bowels; alſo it will be fitting to give them water and all other liquid things, which they ſo much abhorre, in a cup with a cover. Alwaies let ſuch as are poiſoned, or bitten or ſtung, by a mad dog or other venemous beaſt, keep themſelves in ſome warme and light place, that the poyſon which by coldneſſe is forced in, may be the readilier drawne out by the means of heat, and the ſpirits bee recreated by the brightneſſe of the aire, and therefore move from the center to the circumference of the body, and let the roome be perfumed with ſweet things. To eat very hot and ſalt things preſently at the beginning, as onions, leeks, all ſpiced meats, and ſtrong wine not allaied, ſeems not to be beſides reaſon; becauſe ſuch things by their ſpirituous heat hinder the diffuſion of the poyſon over the body, and ſtrengthen the filled entrailes. There be ſome alſo that would have them to feed upon groſſe and viſcous meats, which by obſtructing the veſſels, may hinder the paſſage of the poyſon to the heart and other parts; and by the ſame reaſon it will be better to fill themſelves with meate to ſatietie, than otherwiſe, becauſe the malignity of humours is encreaſed by hunger, than which, nothing can be more harmfull to venemous wounds. Yet within a ſhort while after, as within five or ſixe dayes, they muſt returne to a mediocritie, and uſe all things temperate, boiled meats rather than roaſted, and that in a decoction of opening things, ſo to move urine. Laſtly, they muſt keep ſuch a diet as melancholike perſons ought to do; neither ſhall they let bloud, leſt ſo the poyſon ſhould bee further drawne into the veines; but it is good that the patients body be ſoluble from the very firſt. Let their drinke be wine indifferently allayed with water, *oxymel ſimplex*, or the ſyrupe of the juice of Citron with boiled water; or elſe this following

Julep

Why ſleepe is hurtfull to ſuch as are bitten by a mad dog, and all ſuch as are poyſoned.

Julep. ℞. *ſucci limonum, & malorum citri, an.* ℥ ß. *ſuc. gran. acid.* ℥ ii. *aquæ acetoſæ, min. & roſ. an.* ℥ i. *aq. font. coct. quantum ſufficit, fiat Julep, ut artis eſt.* Sleep is to be avoided untill the force of the poyſon is abated, for by ſleep the humours flow back into the bowells. All things that reſiſt poyſon muſt bee given any way whatſoever, as lemons, oranges, *angelica* rootes, gentian, tormentill, burnet, vervine, *carduus benedictus*, borage, bugloſſe, and the like. Let all things that are afterwards ſet before the patient be meats of good juice, ſuch as are veale, kid, mutton, partridge, pullets, capons, and the like.

Chap. XVI.

Of the biting of a Viper or Adder, and the ſymptomes and cure thereof.

The bites of vipers how virulent.

The ſymptoms.

THe remedies that were formerly mentioned againſt the bitings of madde dogges, the ſame may bee uſed againſt all venemous bites and ſtings, yet neverthleſſe each poyſon hath his peculiar antidote. Vipers or Adders (as we vulgarly terme them) have in their gummes, or the ſpaces betwene their teeth, little bladders filled with a virulent *ſanies*, which is preſſed out into the part that they bite with their teeth. There forthwith ariſeth a pricking paine, the part at the firſt is much ſwollen, and then the whole body, unleſſe it be hindred: groſſe and bloody filth ſweats out of the wound, little bliſters riſe round about it, as if it were burnt, the wound gnawes, and as it were feeds upon the fleſh, great inflammation poſſeſſeth the liver and the gummes, and the whole body becomes very dry, becomming of a yellowiſh or pale colour, with thirſt unquenchable; the bellie is griped by fits, a cholericke vomiting moleſteth them, the ſtomacke is troubled with a hicketting, the patients are taken with often ſownings, with cold ſweate, the forerunner of death, unleſſe you provide by fit medicines for the noble parts, before the poyſon ſhall invade them. *Mathiolus* tells that he ſaw a countrie-man, who, as he was mowing a meadow, by chance cut an Adder in two with his ſithe, which when he thought it was dead, he tooke the one halfe whereon the head remained, without any feare in his hand, but the enraged creature, turning about her head, cruelly bit him by one of his fingers, which finger as men uſually doe (eſpecially when as they thinke of no ſuch thing) hee put into his mouth, and ſucked out the blood and poyſon, and preſently fell downe dead.

A hiſtory.

A hiſtory.

When as *Charles* the ninth was at *Montpelier*, I went into the ſhop of one *Farges* an Apothecary, who then made a ſolemne diſpenſation of Treacle, where not ſatisfying my ſelfe with the looking upon the vipers which were there in a glaſſe, ready for the compoſition, I thought to take one of them in my hands, but whileſt that I too curiouſly and ſecurely handled her teeth which were in her upper jaw, covered with a skinne, as it were a caſe to keepe the poyſon in, the beaſt catched hold of the very end of my fore-finger, and bit me in the ſpace which is betweene the naile and the fleſh; whence preſently there aroſe great pain, both by reaſon of the part endued with moſt exquiſite ſenſe, as alſo by the malignity of the poyſon: forthwith I exceeding ſtraitly bound my finger above the wound, that ſo I might preſſe forth the blood and poyſon, leſt they ſhould diffuſe themſelves further over the body. I diſſolved old treacle in *aqua vitæ*, wherein I dipped and moiſtened cotton, and ſo put it to the wound, and within a few dayes I throughly recovered by this onely medicine. You may uſe in ſtead of Treacle, Mithridate and ſundry other things, which by reaſon of their heat are powerfull drawers, as a ſquill roſted in hot embers, garlicke and leeks beaten and applyed, barly floure tempered with vinegar, hony, and goats dung, and ſo applyed like a pultis. Some thinke it ſufficient forthwith to waſh and foment the wound with vinegar, ſalt, and a little hony. *Galen* writes that the poyſon inflicted by the bite of a viper, may bee drawne forth by applying to the wound the head of a viper, but otherſome apply the whole viper beaten to maſh.

Remedies for the bite of a viper.

Lib. de theriac.

Chap. XVII.

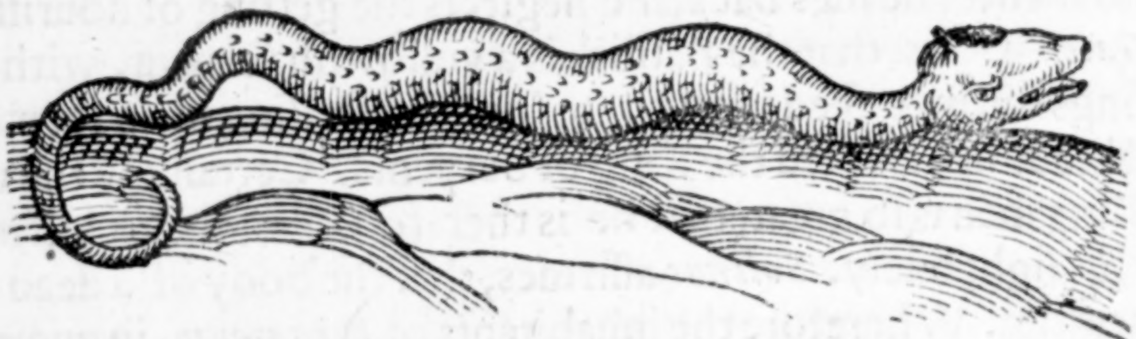
Of the Serpent called Hæmorrhous.

THE Serpent *Hæmorrhous* is ſo called, becauſe by his biting hee cauſeth blood to droppe out of all the paſſages of the wounded bodie; hee is of a ſmall bodie, of the bigneſſe of a viper, with eies burning with a certaine fierie brightneſſe, and a moſt beautifull ſkinne. The backe of him (as *Avicen* writes) is ſpotted with manie blacke and white ſpots, his necke little and his taile verie ſmall: the part which he bites, forthwith growes blackiſh, by reaſon of the extinction of the native heat, which is extinguiſhed by ſuch poiſon which is contrarie thereto in its whole ſubſtance. Then followes a paine of the ſtomacke and heart, theſe parts being touched with the peſtiferous qualitie of the poiſon. Theſe paines are ſeconded by vomiting, the orifice of the ventricle being relaxed by a *Diarrhæa*, the retentive facultie of all the parts of the bellie being weakened, and the veines which are ſpred through the guts, not being able to retaine the blood conteined in them. For the blood is ſeen to flow out, as in ſtreams, from the noſe, mouth, eares, fundament, privities, corners of the eies, rootes of the naile, and gums, which putrefie, the teeth falling out of them. Moreover there happens a difficultie of breathing, and ſtoppage of the urine, with a deadlie convulſion.

The *Hæmorrhous* why ſo called.

Wonderfull bleedings.

The cure is forthwith to ſcarifie, and burne the bitten part, or elſe to cut it quite off, if that it may be done without danger of life, and then to uſe powerfullie drawing Antidotes.



The figure of the ſerpent Hæmorrhous.

Chap. XVIII.

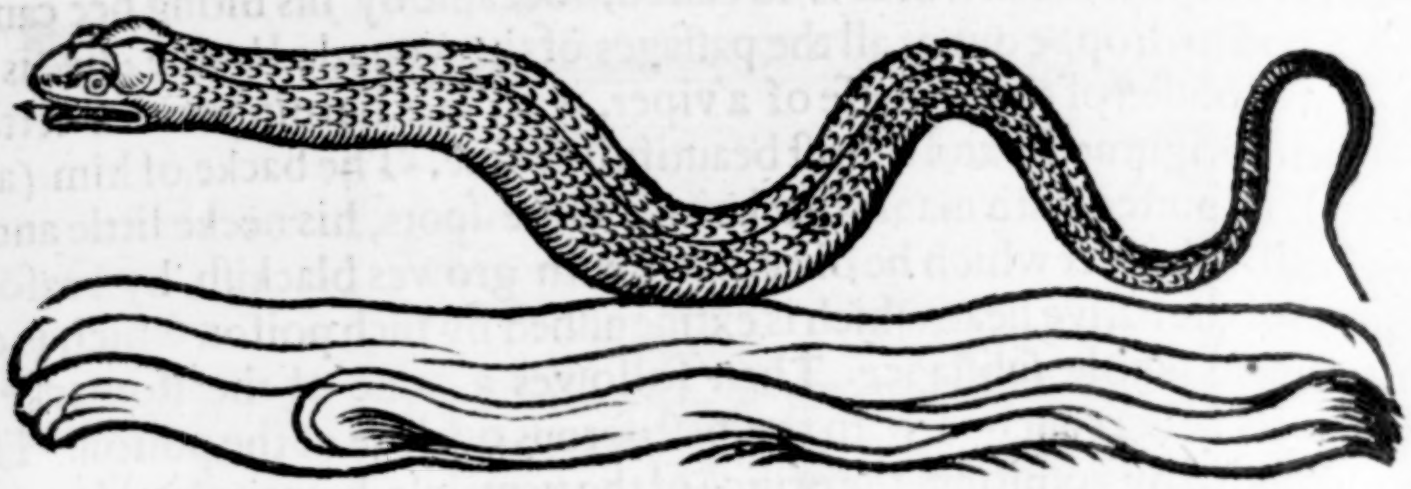
Of the Serpent called Seps.

THe Serpent *Seps* is ſo called, becauſe it cauſeth the part which it bites, forthwith to putrefie, by reaſon of the cruell malignitie of its poyſon. It is not much unlike the *Hæmorrhous*, but that it curles or twines up the taile in divers circles. *Pauſanias* writes that this ſerpent is of an aſh-colour, a broad head, ſmall necke, bigge bellie, writhen taile, and as he goes, hee runs aſide like a crabbe. But his skin is variegated and ſpotted with ſeverall colours, like to Tapiſtrie. By the crueltie of his cauſticke and putrefying venome, hee burnes the part which he hath bit, with moſt bitter paine; he cauſeth the ſhedding of the haires, and as *Aëtius* addeth, the wound at the firſt caſteth forth manifeſt blood, but within a little while after, ſtinking filth. The putrefyed affected parts waxe white, and the bodie all over becomes of the colour of that ſcurſe, which is termed *Alphos*, ſo that by the wickedneſſe of this putrefactive poiſon, not onely the ſpirits are reſolved, but alſo the whole bodie conſumed, as by fire, a peſtilent carbuncle, and other putride tumours, ariſing from a hot and humide or ſuffocating conſtitution of the aire. Now for the remedies, they muſt be ſuch as are formerly preſcribed againſt the bitings of a viper.

The reaſon of the name, and deſcription of the *Seps*.

The ſymptoms.

The Figure of the Serpent Seps.



Chap. XIX.

Of the Baſiliske or Cockatrice.

THe Baſiliske far exceeds all kinds of Serpents in the curſtneſs of its poyſon. Therefore it is affirmed by *Nicander*, that into what place ſoever he comes, other venemous creatures do forthwith flie thence, for that none of them can ſo much as endure his hiſſing; for he is thought to kill all things even with this,& not with his biting and touch only; beſides, if any of them haſten to get anie meate or drinke, and perceive that the Baſiliske is not farre from thence, he flies back,and neglects the getting of nouriſhment neceſſarie for life. *Galen* writes, that the Baſilisk is a yellowiſh ſerpent, with a ſharpe head, and three riſings diſtinguiſhed with white ſpots, and riſing up in forme of a crowne, by reaſon whereof hee is ſtiled the King of Serpents. Certainely the violence of his poyſon in killing men is ſo great, that he is therefore thought to kill men, and other creatures by his ſight onely. *Solinus* affirmes, that the body of a dead Baſiliske hath wondrous faculties. Wherefore the inhabitants of *Pergamum*, in ancient times,gave a mightie price for one, to hang upon the joiſtes of the temple of *Apollo*, ſo to drive away the Spiders and Birds, leſt they ſhould there weave their webs, or the other build their neſts in that ſacred place. Verily no ravenous creature will touch their carkaſſe; but if conſtrained by hunger they doe touch it, then they forthwith fall downe dead in the ſame place: and this happens not onely by eating their body,but alſo by devouring the bodies of ſuch beaſts as are killed by their bitings. They kill the trees and ſhrubs by which they paſſe, not onely by their touch, but even with their breath. Amongſt the weſterne Æthiopians is the fountaine *Nigris*, neer which there is a ſerpent called *Catablepas*, ſmall in bodie, and ſlow, having a great head; which it ſcarce can carrie, but that it lies alwaies upon the ground, otherwiſe it would kill abundance of people, for it forthwith kills all that ſee the eyes thereof, the Baſiliske hath the ſame force; he is bred in the province of *Cyrene*, of the length of ſome twelve fingers, with a white ſpot in his head, reſembling a crowne; he chaſeth away all ſerpents with his hiſſe: Weaſels are the deſtruction of ſuch monſters: thus it pleaſed nature,that nothing ſhould be without its equall; they aſſaile them in their dennes, being eaſily knowne by the barrenneſſe or conſumption of the ſoile. Theſe kill them alſo by their ſent, and they die, and the fight of nature is ended: thus nature to the magnanimous Lion,leſt there ſhould be nothing which he might fear, hath oppoſed the weake creature the Cocke, by whoſe crowing onely he is terrefied and put to flight. *Eraſiſtratus* writes,that a golden yellowneſſe affects the bitten part of ſuch as are hurt by a Baſiliske, but a blackneſſe and tumour poſſeſſeth the reſt of the body, all the fleſh of the muſcles within a while after falling away piecemeale. An antidote againſt this muſt be made of a dramme of *Caſtoreum* diſſolved

in

The efficacy of of the poyſon of the Baſilisk.

Lib. de therias.

Why the Baſiliske is thought to kill by his onely ſight.

Plin. lib. 8. cap. 21.

The *Catablepas.*

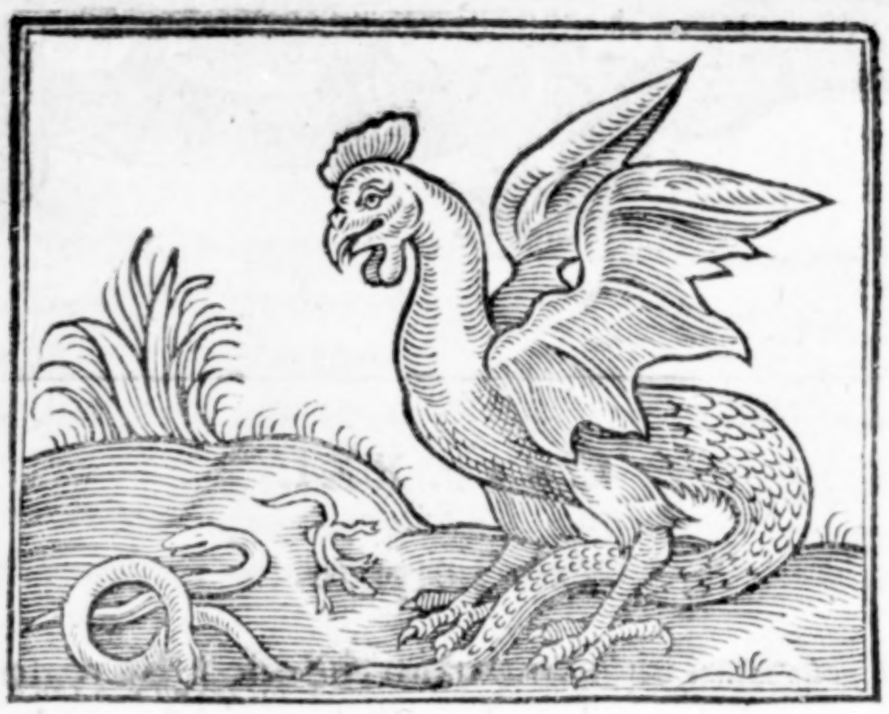
Nothing in nature without its equall.

Symptomes.

Cure.

in wine and drunken, or elſe in the juice of poppie. But *Aëtius* thinkes it ſuperfluous to write remedies againſt the Baſiliske, when as the ſight and hearing onely kills ſuch as either ſee or heare her.

The figure of a Baſiliske.



CHAP. XX.

Of the Salamander.

THe Salamander kils not onely ſuch as it bites by making a venemous impreſſion, but it alſo infects the fruits and herbs over which it creeps, with a ſpittle or groſſe moiſturewhich ſweats out of all the bodie, to the great danger of the health and life of ſuch as eat theſe things at unawares: wherfore it need not ſeeme ſtrange, which is received by ſome late writers, that ſome families have all died by drinking water out of pits, whereinto a Salamander by accident was fallen. For if it ſhall creepe upon a tree, it infects all the fruit with the qualities of cold and moiſt poyſon, wherein it yeelds not to Aconite.

The malignity of a Salamander.

The temper of her.

Aetius writes that ſuch as are infected with the poyſon of a Salamander, certaine parts of their bodie grow livide, ſo that they fall away often, being putrefyed. At the firſt there appeare white ſpots over the body, then red, afterwards blacke with putrefaction, and the falling away of the haires. The cure is, to procure vomit, to looſe the belly with a glyſter, and to give them Treacle and Mithridate in potions. *Avicen* preſcribes the ſame things againſt this kinde of poyſon as againſt *opium*, by reaſon of the cold nature of them both; the proper antidote is turpentine, *ſtyrax*, nettle ſeeds, and cypreſſe leaves. *Dioſcorides* writes that the Salamander is a kind of Lizard dull, variegated, and which is falſly reputed not to be burnt by fire. But *Pliny* ſaith ſhe is ſo cold, that ſhe extinguiſheth the fire by her touch onely, being laied upon hot coales. On the contrary, *Mathiolus* ſaith that caſt into a great flame, they are quickly conſumed. It is eaſie out of *Aetius* to reconcile theſe diſagreeing opinions; This creature, ſaith hee, paſſeth through a burning flame, and is not hurt, the flame dividing it ſelfe and giving her way, but if ſhee continue any time in the fire, the cold humour being conſumed in her, ſhe is burnt. Now the Salamander is black, variegated, with yellow ſpots, ſtarre-faſhion.

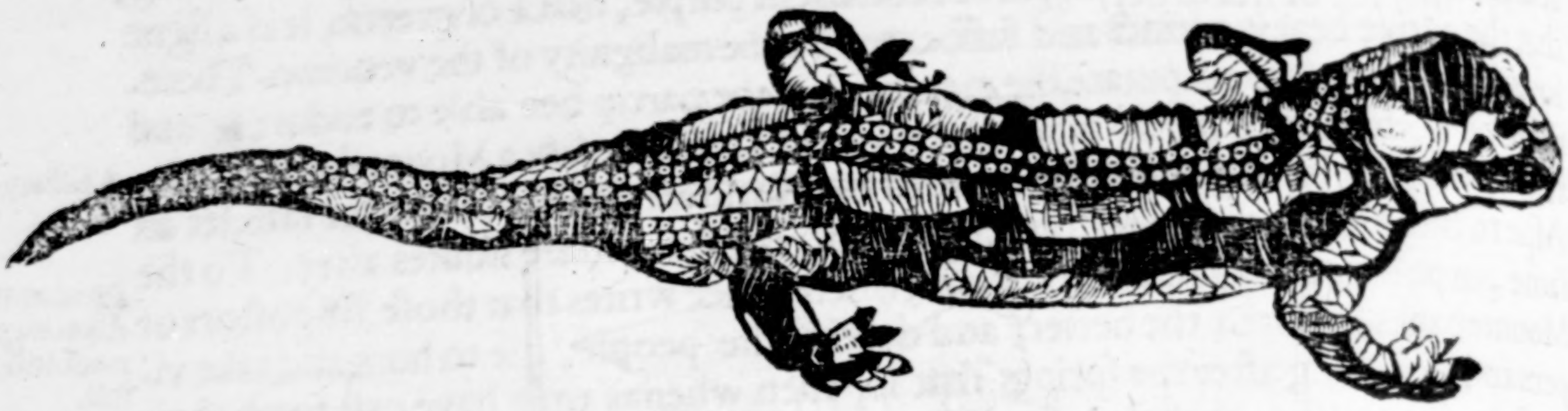
Symptomes.

The cure.

Lib. 2. cap. 54.

How a Salamander may be ſaid to live in the fire.

The figure of a Salamander.



Chap. XXI.

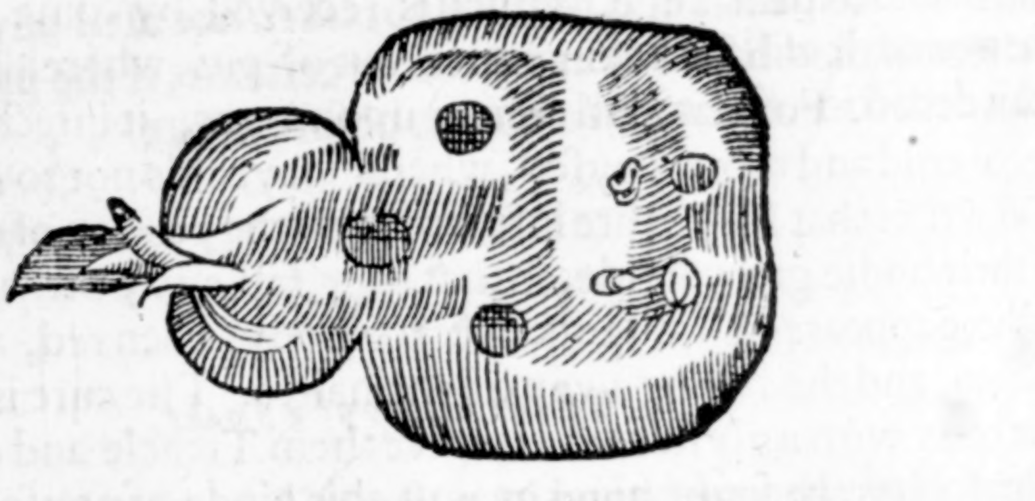
Of the Torpedo.

THe *Torpedo* hath his name from the effect, by reaſon that by his touch and power the members become torpid & numb; in muddy ſhoars it lives upon fiſh, which ſhe catcheth by craft. For lying in the mud, ſhe ſo ſtupefyes thoſe that are nigh her, that ſhe eaſily preyes upon them; ſhe hath the ſame power over men, for ſhe ſends a numneſſe not onely into the arm of the fiſherman, but alſo over all his body, although his fiſhers pole be betweene them.

The craft of the *Torpedo.*

His ſtupefying force.

The effigies of a Torpedo.



Chap. XXII.

Of the Bitings of Aſpes.

THE wound which is made by an Aſpe is very ſmall, as if a needle were thruſt into the part, and without any ſwelling. Theſe ſymptomes follow upon her bite, ſuddaine darkneſſe clouds their eyes, much agitation in all their bodies, but gentle notwithſtanding; a moderate paine of the ſtomacke troubles them, their foreheads are continually troubled with convulſive twitchings, their cheeks tremble, and their eye-lids fall gently to reſt and ſleep; the blood which flowes from the wound is little, but blacke; death no longer deferred than the third part of a day, will take them away by convulſions, unleſſe you make reſiſtance with fitting remedies. The male Aſp makes two wounds, the female four, as it alſo happens in the bitings of vipers. Now for that the poyſon of Aſps congeals the blood in the veines and arteries, therefore you muſt uſe againſt it ſuch things as

Symptomes.

Cure.

are hot & ſubtle of parts, as mithridate or treacle diſſolved in *aqua vitæ*, and the ſame powred into the wound; the patient muſt be warmed by bathes, frictions, walking, and the like. When as the hurt part becommeth purple, black or greene, it is a ſigne that the native heat is extinct and ſuffocated by the malignity of the venome. Therefore then it is beſt to amputate the member, if the partie bee able to endure it, and there be nothing which may hinder. *Vigo* writes, that he ſaw a Mountebank at Florence, who, that he might ſell the more of his Antidotes, and at the better rate, let an Aſpe to bite him by the finger, but he died thereof ſome foure houres after. To the ſame purpoſe you may reade *Mathiolus*, whereas hee writes that thoſe Impoſtors or Mountebanks to cozen the better, and deceive the people, uſe to hunt and take vipers and aſpes long after the ſpring, that is, then whenas they have caſt forth their moſt deadly poyſon; then they feed them with meats formerly unuſuall to them, ſo that by long keeping and care, at the length they bring it to paſſe, that they put off a great part of their venemous nature; neither being thus ſatisfied, they make them oftentimes to bite upon pieces of fleſh, that ſo they may caſt forth into them the venome which is contained in the membraine betweene their teeth and gums. Laſtly, they force them to bite, licke and ſwallow downe an aſtringent medicine, which they compoſe and carry about for the ſame purpoſe, that ſo they may obſtruct the paſſages by which the venome uſed to flow out, for thus at length their bites will be harmeleſſe, or without great danger. This therefore is their art, that ſo they may ſell their counterfeit treacle to the people at a high rate, as that which is a moſt ſafe remedy againſt all poiſonous bites. *Chriſtopher Andrew* in his book called *oicoiatria*, writes, that the Ilands of Spaine are every-where full and ſtored with ſerpents, aſpes, and all ſorts of venemous beaſts, againſt whoſe bites they never obſerved or found any benefit in treacle. But the efficacie of the following Antidote is ſo certaine and excellent, and approved by ſo manifold experience, that in the confidence thereof, they will not bee affraid to let themſelves bee bitten by an Aſpe. Now this medicine is compoſed of the leaves of Mullet, Avenes & red ſtock Gilly flowers in like quantity, which they boile in ſharpe vinegar and the urine of a ſound man, and therewith foment the wounded part. Yet if he have not taken nor uſed any thing of a good while after the wound, it will be better and more certaine, if the patient drinke three ounces of this decoction faſting two houres before meate.

A hiſtory.

By what means Aſpes may bee made leſſe hurtfull.

Gal. lib. de Ther. ad piſonem.

Againſt the bites of what ſerpents treacle doth no good.

A certain remedy againſt the bitings of Aſpes.

CHAP. XXIII.

Of the biting of a Snake.

I Have thought good in a true hiſtory to deliver the virulent malignity of the bite of a ſnake, and the remedies thereof. When as King *Charles* the ninth was at Moulins, *Mouſier Le Feure*, the Kings Phyſician, and I were called to cure the Cooke of the Lady of Caſtelpers. Who gathering hoppes in a hedge to make a ſalad, was bit on the hand by a ſnake that there lay hid, hee putting his had to his mouth, ſucked the wound to eaſe the paine by ſucking forth the venome. But his tongue forthwith ſwelled ſo bigge, that he could not ſpeak his mind: beſides his whole arme, even to his ſhoulder, was in like ſort much ſwelled, his paine was ſo vehement, that it made him ſwoune twice in my preſence, his face was wan and livid like to a dead body, and though I deſpaired of his recovery, yet not ſuffering him to bee quite forſaken, I waſhed his mouth with treacle diſſolved in white wine, and gave him ſome thereof to drinke, adding thereto ſome *aqua vitæ*. I opened his ſwolne arme with many and deepe ſcarifications, eſpecially in the place where he was hurt, I ſuffered the bloud which was wholly ſerous and ſanious, to flow more plentifully, I waſhed the wounds with treacle and mithridate diſſolved in *aqua vitæ*, and then I put him exceeding warme in bed, procuring ſweat, and making him to lie awake, leſt ſleep ſhould draw the poyſon inwards to the entrailes. I by theſe meanes ſo farre prevailed, that on the day after hee was freed from all his maligne ſymptomes. Therefore I judged it onely remained

A hiſtorie.

The cure.

for a perfect cure, that the wound ſhould be long kept open and waſhed with treacle, neither was I deceived, for within a few dayes he was perfectly recovered.

Chap. XXIV.

Of the bitings of Toads.

The bites of toads how harmfull.

Hough Toads want teeth, yet with their hard & rough gums they ſo straitly preſſe or pinch the part which they ſhall take hold on, that they will force their poiſon thereinto, and ſo over the whole body by the pores of the preſſed part. Moreover, they caſt forth their venome by urine, ſpittle and vomit upon herbes, but chiefly upon Strawberries, the which they are reported greatly to affect. Hence many ſuddenly and ignorantly catch their deaths.

A hiſtory.

The ſymptomes occaſioned by the poyſon of toads.

May frogs.

The cure.

I heard from a man of very good credit, that there were two merchants not farre from the Citie *Tholouſe*, who whileſt dinner was providing, walked into the garden that belonged to the Inne, where they gathered ſome ſage leaves, and unwaſhed as they were, put them into their wine. They had not as yet dined, when being taken with a ſudden *Vertigo*, the whole Inne ſeemed to run round, then loſing their ſight, they fell into a ſowne, intermixed now and then with convulſions. But they ſtammered with their lippes and tongues becomming blacke; a froward and horrid look with continuall vomiting, and a cold ſweat, the forerunner of death, which preſently ſeazed upon them, their bodies becomming exceedingly much ſwolne. But the Juſtices of the place ſuſpecting that they were poyſoned, made the Inne-keeper and the Gueſts to be apprehended, being examined, they all conſtantly & with one voice anſwered, that the dead parties ate of the ſame meat and drinke which the reſt did, but onely that they put ſage into their wine. A Phyſician was asked the queſtion whether ſage might be poyſoned; he anſwered, it might: but to come to the purpoſe, that it muſt appeare whether any venemous creature had poyſoned the plant with her ſpittle or venemous *ſanies*. This which was lightly pronounced, and only by conjecture, was by the eye found to bee true. For at the roote thereof there was found a hole in the ground full of Toads, who got out by putting in of warme water, made it credible that the plant was poyſoned by their ſpittle and urine, whereby you may underſtand how unwiſely they doe, who devoure herbes and fruits newly gathered without waſhing. Alſo we muſt take heed leſt falling aſleep in the fields, wee lye not neere the holes which toads or other venemous beaſts of the like nature have made their habitation. For thence a venemous or deadly aire may be drawn into the lungs. For the ſame cauſe wee muſt abſtaine from eating of frogs in the moneth of May, becauſe then they engender with toads. Oxen in feeding ſometimes lick up ſmall toads together with the graſſe, which preſently will breed their great harme, for thereupon the oxen ſwell ſo big, that they often burſt withall. Neither is the venome of toads deadly only being taken inwardly, but even ſprinkled upon the skin, unleſs they forthwith wipe the place, & waſh it with urine, water & ſalt. Such as are poiſoned by a toad turn yellow, ſwell over all their bodies, are taken with an Aſthmaticke difficultie of breathing, a *Vertigo*, convulſion, ſowning, and laſtly by death it ſelfe. Theſe ſo horrid ſymptoms are judged inherent in the poyſon of toads, not only by reaſon of the elementary qualities therof, coldneſs & moiſture, which are chiefly predominant therein; but much rather by the occult property which is apt to putrefie the humors of that body whereto it ſhall happen. Therfore it wil be convenient to procure vomit, eſpecially if the poiſon be taken by the mouth, to give glyſters, & to weaken the ſtrength of the poiſon by hot and attenuating Antidotes, as treacle & mithridate diſſolved in good wine; but in concluſion to digeſt it by bathes, ſtoves, and much and great exercise. *Rondeletius* in his book *de Piſcibus*, affirmes the ſame things of the curſed venome of toads, as we have formerly delivered: yet that they ſeldome bite, but that they caſt forth either their urine, the which they gather in a great quantity in a large bladder, or elſe their venemous ſpittle or breath againſt ſuch as they meete withall, or aſſaile; beſides, the herbs which are tainted by their poiſonous breath, but much more ſuch as are ſprinkled with their ſpittle or urine, are ſufficient to kill ſuch as eate them. The Antidotes are juice of betonie, plantaine, mugwurt, as alſo the bloud of Tortoiſes made with flower into pils, and forthwith diſſolved in wine, and drunken. *Pliny* writes that the hearts and ſpleens of toads reſiſt poiſon. The vulgar opinion is falſe, who thinke that the toad-ſtone is found in their heads, which is good againſt poyſon.

Antidotes againſt the poyſon of toads.

Chap. XXV.

Of the ſtinging of a Scorpion.

The deſcription of a Scorpion. His taile.

A Scorpion is a ſmall creature with a round bodie in forme of an egge, with many feet, and a long taile conſiſting of many joints, the laſt whereof is thicker and a little longer than the reſt, at the very end thereof is a ſting, in ſome two, hollow and replete with cold poyſon, the which by the ſting it caſts into the obvious body; it hath five legs on each ſide forked with ſtrong clawes, not unlike to a Crab or Lobſter, but the two foremoſt are bigger than the reſt; they are of a blackiſh or ſootie colour, they goe aſide, aſide; and oft-times faſten themſelves with their mouthes and feet ſo faſt to men, that they can ſcarce be plucked therehence. There be ſome who have wings like the wings of Locuſts, waſting the corn & all green things with their biting and burning. Such are unknown in France. Theſe flee over divers Countries like winged Ants. This is likely to be true by that which *Mathiolus* writes, that the husbandmen in Caſtile in Spain, in digging the earth oft-times finde a ſwarm of Scorpions, which betake themſelves thither againſt winter. *Pliny* writes, that Scorpions laid waſte a certaine part of Æthiopia, by chaſing away the inhabitants. The Ancients made divers kinds of Scorpions, according to their varietie or difference of colours, ſome being yellow, others browne, rediſh, aſh-coloured, greene, whitiſh, blacke, duskie; ſome have wings, and ſome are without. They are more or leſſe deadly according to the countries they inhabite. In Tuſcanie and Scythia they are abſolutely deadly, but at Trent and in the Iland Pharos their ſtinging is harmleſſe. The place ſtung by a Scorpion preſently begins to be inflamed, it waxeth red, growes hard and ſwels, and the patient is againe pained, hee is one while hot, another while cold, labour preſently wearies him, and his paine is ſomewhiles more and ſomewhiles leſſe, he ſweats and ſhakes as if he had an Ague, his haire ſtands upright, paleneſſe diſcolours his members, and hee feels a paine, as if he were pricked with needles over all his skin, wind flieth out backwards, he ſtrives to vomit and goe to ſtoole, but doth nothing, he is moleſted with a continuall feaver and ſowning, which at length proves deadly, unleſſe it be remedied. *Diſcorides* writes, that a Scorpion beaten and laid to the place where he ſtung, is a remedy thereto, as alſo eaten roaſted to the ſame purpoſe. It is an uſuall, but certaine remedy to anoint the ſtung place with the oyl of Scorpions. There be ſome who drop into the wound the milkie juice of figs, others apply thereto Calamint beaten, otherſome uſe barly meale-mixed with a decoction of Rue. Snailes beaten together with their ſhels, and laid thereon preſently aſſwage pain. *Sulphur vivum* mixed with turpentine, and applyed plaſter-wiſe, is good; as alſo the leaves of Rue beaten & laid thereto. In like ſort alſo the herbe *Scorpioides*, which thence tooke its name, is convenient, as alſo a bryony root boiled and mixed with a little ſulphur and old oile. *Diſcorides* affirmes Agarick in powder or taken in wine to be an Antidote againſt poyſons, verily it is exceeding good againſt the ſtingings or bitings of ſerpents. Yet the continuall uſe of a bath ſtands in ſtead of all theſe, as alſo ſweat and drinking wine ſomewhat alaid. Now Scorpions may bee chaſed away by a fumigation of *Sulphur* and *Galbanum*; alſo oile of Scorpions dropped into their holes, hinders their comming forth. Juice of radiſh doth the ſame. For they will never touch one that is beſmeared with the juice of radiſh or garlike, yea verily, they will not dare to come neare him.

Winged Scorpions.

Symptomes.

Lib. 2. cap. 10. & lib. 6. cap. 44.

Lib. 3. cap. 1.

Scorpions chaſed away with the juice of garlick or Radiſhes.

CHAP. XXVI.

Of the ſtinging of Bees, Waſpes, &c.

The ſymptoms.

The cure.

BEes, Waſpes, Hornets and ſuch like, cauſe great paine in the skin wounded by their ſtinging, by reaſon of the curſtneſſe of the venome which they ſend into the body by the wound, yet are they ſeldome deadly, but yet if they ſet upon a man by multitudes, they may come to kill him. For thus they have ſometimes been the death of horſes. Wherefore becauſe ſuch as are ſtung by theſe, by reaſon of the cruelty of pain, may think they are wounded by a more virulent and deadly creature, I thinke it not amiſſe to ſet downe what ſignes follow upon their ſtingings. Great paine preſently ariſeth, which continueth untill the ſting left in the part is taken forth, the part becomes red and ſwolne, and there riſeth a puſh or little bliſter. The cure is, forthwith to ſucke the wound very hard, and thereby to draw forth the ſtings, which if they cannot thus be gotten out, the place, if nothing hinder, is to be cut, or elſe temper aſhes with leven or oile, and ſo apply them: the part alſo may be very conveniently put into hot water, and there fomented for an houres ſpace, and at length waſhed in ſea water. Creſſes beaten and applied, aſſwage the paine and diſcuſſe the humour cauſing the tumour. Oxe dung macerated in oile and vinegar, and applyed hot, doth the ſame. There are ſome who apply to the part the ſame creatures beaten, as we formerly ſaid of Scorpions; beans chawed and laid to the part aſſwage paine. Vinegar, hony and ſalt applied exceeding hot, are good, if beſides, you dip a cloth therein, and lay it upon the place; *ſulphur vivum* tempered with ſpittle hath the ſame effect. The milkie juice of unripe figs incorporated with hony, is judged very effectuall, but it is much the better, mixed with treacle. Waſpes will not ſting nor bite ſuch as anoint their bodies with the juice of mallowes mixed with oile. They may bee quickly chaſed away with the fume of brimſtone and ſuch like things. A waſpe is ſaid, if ſhee find a viper dead, to dip her ſting in the others poyſon, and thence men learned to empoiſon the heads of their arrowes. The rough and hairy wormes, which are commonly called Bear-wormes, eſpecially thoſe which breed about a Pine tree, cauſe great itching, redneſſe & ſwelling in the part which they bite, touch or grate upon very hard. A remedy hereof is onions beaten with vinegar, and the reſt of the things formerly mentioned.

The bites of Bear-wormes.

CHAP. XXVII.

Of the bite of a Spider.

Differences of Spiders.

SPiders weave webs with various art, yet in theſe they alwaies make a lurking hole, ſo to lye in waite to catch the intrapped flyes, and ſo to prey upon them. There are many ſorts of Spiders, one is termed *Rhagium*, round and like a blacke berry, whence it taketh the name; it hath a very ſmall mouth under the midſt of the belly, and moſt ſhort feet, as if they were imperfect, her bite is as painefull as the ſting of a Scorpion. Another is called *Lupus* or the Wolfe-ſpider, becauſe ſhee doth not onely lye in waite to catch flyes, but alſo bees and waſpes, and all ſuch things as may flee into her webbe. The third is named *Myrmecion*, it is larger than an Ant, but headed like one, the bodie thereof is blacke, and hath white ſpots or ſtreakes running towards the backe. The fourth kind may bee called *Veſparium*, in other things reſembling a Waſpe, but that it wants the wings; of a rediſh colour, and living onely on herbes. The Ancients have thought their bitings to bee venemous. Now their poyſon is therefore thought to bee cold, becauſe the ſymptomes thence ariſing are winde in the belly, refrigerations of the extreme parts of the body, numneſſe in the bitten part, with ſenſe of cold and ſhaking. The wound muſt forthwith be waſhed with very hot vinegar; then muſt you lay thereto onions, and ſuch like things beaten, then procure ſweat by art, as by bathes and ſtoves, yet nothing is more effectuall than treacle and mithridate.

CHAP. XXVIII.

Of Cantharides *and* Bupreſtes.

The deſcription of *Cantharides.*

Enemies to the Bladder.

Symptomes.

A hiſtory.

The cure.

C*Antharides* ſhine as it were with a golden colour, acceptable to the eye, by reaſon of the commixture of a blewiſh or greeniſh colour therewith, yet their ſmell is ungratefull. They are hot and dry in the fourth degree, and ſo cauſticke, corroſive and venemous, not onely by reaſon of their cauſtick quality, but becauſe of a ſecret antipathy which they naturally have againſt the urenary parts; which effects they produce not onely if they bee taken by the mouth into the body, but even applyed outwardly to raiſe bliſters. Such as have taken them inwardly, have the taſt of pitch or ſome thing like *cedria,* or the roſen of Cedars, in their mouthes, it is likely that this taſt proceeds from the humours diſſolved by the putredinous heat in the ſtomack, guts & liver, and the vapours that therehence ariſe; for taken inwardly, they gnaw, exulcerate and burne all parts from the mouth even to the belly, whence enſueth a bloudy fluxe, excrements flowing out, which reſemble the waſhings of new killed fleſh. Then followes a burning feaver, *vertigo,* madneſſe, reſtleſneſſe, the braine being diſturbed by the plenty of vapours lifted up from the corroded and burnt parts and humours, which therefore when as they appeare, you may know the affect is uncurable. In the parts appointed for the receiving and conveyance of the urine they cauſe a burning inflammation, excoriation, ſtrong and continuall erection of the yard, whence enſues a bloudy and painefull ſtrangury, in ſtead of which there oft-times happens or ſucceeds an Iſchary or ſtoppage of the water, whence a gangrene and mortification of the part, and ſo in concluſion of the whole bodie beſides. When as *Cantharides* are taken inwardly, the remedie is vomiting, drinking of Cowes mike to correct the heat and dryneſſe, good alſo to mitigate the ulcers and ſtay the dyſentery; it is good alſo to inject it into the guts by glyſter. In ſtead thereof ſallade oile, or oile of ſweet almonds is convenient to retunde the acrimonie of the poyſon faſtned to the ſides of the ſtomack. The reſt and whole cure of this poyſon you may learne by the following hiſtory. A certain whore, the better to enjoy the company of a young Abbot who loved her, entertained him with a banquet, and ſprinkled divers of their cates with the powder of *Cantharides,* to incite him the more to venery. The next day, when as the Abbot caſt forth pure bloud at his fundament and yard which ſtood very ſtiffe, hee called ſome Phyſicians, who preſently by the forementioned ſymptomes, which were all very apparent in him, underſtood that he had *Cantharides* given him: wherefore they purged him upwards with vomits, and downewards by glyſters made with French barly, Rice, a decoction of mallowes, ſeeds of line and fœnugreek, oyle of lillies, goats ſuet: then preſently after they gave him a little treacle with a good quantity of conſerve of violets, which might draw the poyſon outwards, they gave him milke to drinke, and cauſed him to uſe injections into the urenary paſſage and guts made of refrigerating things, as the juice of lettuce, purſlaine, cucumbers, gourds, melons; of tough and viſcide things, that ſo they might ſticke the more eaſily and long to the ulcerated parts, as the mucilages of *pſilium,* mallowes, quince-ſeeds, ſyrupe of water-lillies, popies and violets, freſh butter, and oile of ſweet almonds, and they made him drinke onely barly water, or the common ptiſan; they let him feede on veale, kid, and porke boyled with lettuce, purſlaine, barly and violet leaves, the which by their humidity might relaxe the belly, and by their toughneſſe lenifie the roughneſſe or aſperitie; they applyed alſo refrigerating things to the loines, ſhare and *perinæum* to aſſwage the heate of the urine. At length they put him into a warme bath, and to conclude, they left nothing unattempted to draw forth or weaken the poyſon. But all their endeavours were in vaine, for the Abbot dyed, not being deſtitute of remedies conveniently preſcribed, but overcome by the contumaci-

ous

A hiſtory.

Cantharides applyed to the head, ulcerate the bladder.

A remedy againſt Leprous puſtles.

ous malignity of the poyſon. The Phyſicians pains had far better ſucceſſe in a certain Gentlewoman againſt this kinde of affect; her whole face was deformed with red, fierie and filthy puſtles, ſo that all ſhunned her company as if ſhee had beene troubled with a Leproſie, and were ready to forbid her the ſociety of men; ſhee came to Paris, and calling *Hollerius* and *Grealmus* Phyſicians, mee and *Caballus* being Surgeons, ſhee made a grievous complaint, and beſought us earneſtly for ſome remedy againſt ſo great a deformity of her face; having diligently conſidered her caſe, we pronounced her free from a Leproſie; but we judged it fit to apply to her whole face a veſicatorie of *Cantharides*, three or foure houres after the application whereof, the medicine being come to worke its effect, her bladder began to burne exceedingly, and the necke of her wombe to ſwell, with gripings, continuall vomiting, making of water and ſcowring, a troubleſome agitation of the body and members, a burning and abſolutely fiery feaver. I forthwith called the Phyſicians, it was decreed that ſhe ſhould drink wine plentifully, and that it ſhould bee injected by the fundament into the guts, and by the urenary paſſage into the bladder and the neck of the womb, and that ſhe ſhould keep her ſelfe, untill the paine were mitigated, in a warme bath made of the decoction of Line-ſeeds, the roots and leaves of mallowes, marſh-mallowes, violets, henbane, purſlaine and lettuce; and her loynes and genitals ſhould be anointed with *unguentum roſatum & populeon* ſtirred and incorporated with oxycrate. By theſe meanes, all the ſymptomes were mitigated. Her face in the interim roſe all in a bliſter, and much purulent matter came out thereof, and ſo the deformity, wherewith ſhee was formerly troubled, vaniſhed away for ever, ſo that within a while after ſhee was married, and had many children, and is yet living in perfect health.

The reaſon of the name.

Bupreſtes alſo are of the kinde of *Cantharides*, being like unto them in ſhape and faculty. If an Oxe or Sheepe or any other creature ſhall in feeding devoure one of them, hee will preſently ſwell up like a Tunne; whence alſo they take their name: if a man take them inwardly, hee ſhall endure the like ſymptomes as in taking *Cantharides*, and over and beſides both his ſtomacke and his whole belly ſhall be wonderfully puffed up, as if he had a Dropſie. It is probable that this inflation like a tympany happenneth by humours diffuſed and reſolved into vapours by the fiery acrimony of the venome: They are to bee cured after the ſame manner as ſuch as have drunke *Cantharides*. Laſtly, as in all other poyſons which are taken into the body, ſo alſo here, if the poyſon taken by the mouth bee thought as yet to bee in the ſtomacke, you muſt then procure vomit. If it bee gotten into the guts, then muſt it be drawn away by glyſters; if diffuſed over all the body, then muſt you make uſe of ſuch things as may drive the poyſon forth from the center to the circumference, ſuch as are bathes and ſtoves.

Chap. XXIX.

Of Horſe-Leaches.

What horſe-leaches moſt virulent.

Divers remedies according to the diverſity of the parts.

Horſe-Leaches are alſo venemous, eſpecially ſuch as live in muddy ſtinking ditches, for theſe are leſſe hurtfull which reſide in clear & pure waters. Wherefore, before they are to bee uſed in caſes of Phyſick, they muſt be kept for ſome dayes ſpace in cleane water, that ſo they may purge themſelves; otherwiſe they may chance to leave ulcers hard to cure in the places whereto they ſhall be applyed, and the rather, if they bee violently plucked off, becauſe they by that meanes leave their teeth faſtned in the part. Now hee which by chance hath ſwallowed a Horſe-leach, muſt bee asked in what part hee feeleth her, that is, the ſenſe of her ſucking. For if ſhee ſticke in the top of the Throate or Gullet, or in the middeſt thereof, the part ſhall bee often waſhed with muſtard diſſolved in vinegar. If ſhee bee neare the orifice of the ventricle, it is fit that the patient by little and little ſwallow downe oyle with a little vinegar. But if ſhee faſten to the ſtomacke, or the bottome of the ventricle, the patient by the plucking of the part ſhall perceive a certaine ſenſe of ſucking, the patient will ſpit bloud, and will for feare become melancholicke. To force her thence, hee ſhall drinke warme water with oyle; but if ſhee cannot ſo bee looſed, then ſhall you mixe Aloes therewith, or ſome thing endued with the like bitterneſſe, for ſhee will by that meanes leave her hold, and ſo bee caſt forth by vomit. You may perceive this by ſuch as are applyed to the skinne, on the externall parts, for by the aſperſion of bitter things, whether they bee full or empty, they will forſake their hold. Then ſhall the patient take aſtringent things, which may ſtoppe the bloud flowing forth of the bitten part, ſuch is conſerve of Roſes, with *terra ſigillata*, bole armenicke, and other more aſtringent things, if need ſo require. For if they ſhall adhere to ſome greater branch of ſome veine or artery, it will bee more difficult to ſtop the flowing bloud.

But for that not the earth onely, but the ſea alſo produceth venemous creatures, wee will in like ſort treat of them, as wee have already done of the other, beginning with the Lampron.

CHAP. XXX.

Of the Lampron.

The deſcription of the Lampron

THE Lampron, called in Latine *Murana*, is a ſea fiſh ſomething in ſhape reſembling a Lamprey, but ſhee is bigger and thicker, and hath a larger mouth, with teeth long, ſharpe and bending inwards, ſhe is of a duſkie colour, diſtinguiſhed with whitiſh ſpots, and of ſome two cubits length; the Ancients had them in great eſteem, becauſe they yeeld good nouriſhment, and may be kept long alive, in pooles or ponds, and ſo taken as the owners pleaſe to ſerve their table, as it is ſufficiently knowne by the hiſtorie of the Roman *Craſſus*. Shee by her biting induceth the ſame ſymptomes as the viper, and it may bee helped by the ſame meanes. Verily the Lampron hath ſuch familiarity with the Viper, that leaving her naturall element, the ſea, ſhe leapeth a ſhoare, and ſeeketh out the Viper in her den to joyne with her in copulation, as it is written by *AElian* and *Nicander*.

The naturall friendſhip of the Lampron and Viper.

CHAP. XXXI.

Of the Draco-marinus *or ſea-Dragon.*

THE ſea-Dragon called by the French *Viva*, for his vivacity (and by the Engliſh a Viver, or as ſome ſay a Qua-viver) becauſe being taken in fiſhing and drawne out of the ſea, ſhee is ſaid long to ſurvive. Her pricks are poyſonous, but chiefly thoſe that are at the edges of her gils. Which is the reaſon that Cookes cut off their heads before they ſerve them up to the table; and at Roven the fiſhermen lay them not upon their ſtalles to ſell before they have cut off their heads. The wounded part of ſuch as are hurt, paines them much, with inflammation, a feaver, ſowning, gangrene and deadly mortification, unleſſe it be quickly withſtood. Not very long agoe the wife of *Monſieur Fromaget*, Secretary of the requeſts, was wounded with a prick of this fiſh in her middle finger, there followed a ſwelling and redneſſe of the part, without much paine; but perceiving the ſwelling to encreaſe, being made more wary by the miſchance of her neighbour the wife of *Monſieur Bargelonne* Lievtenant particulier in the Chaſtelet of Paris, who died not long before by the like accident being neglected, ſent for mee; I underſtanding the cauſe of her diſeaſe, laid to her pained finger and her whole hand, beſides a pultis made of a great Onion roaſted under the coales, leaven and a little treacle. The next day I wiſhed her to dip her whole hand into warme water, ſo to draw forth the poyſon, then I divided the skin about it with much ſcarification, but onely ſuperficiarily; to the gaſhes I applyed Leaches, which by ſucking drawing a ſuffici-

Symptomes.

A hiſtory.

Cure. ſufficient quantity of bloud, I put thereto treacle diſſolved in *aqua vitæ*. The next day the ſwelling was aſſwaged, and the paine eaſed, and within a few daies ſhee was perfectly well. *Dioſcorides* writes that this fiſh divided in the midſt and applyed to the wound, will cure it.

CHAP. XXXII.

Of the Paſtinaca narina, *or Sting-Ray, which ſome call the Pierce-claw.*

The ſymptoms. SUch as are ſtung by a Sting-Ray (as *Aëtius* hath written) the place of the wound doth manifeſtly appeare; there enſues thereon laſting paine and the numneſſe of the whole body. And ſeeing that it hath a ſharpe and firme ſting, whereby the nerves by the deepneſſe of the ſtroake may be wounded, it ſo happens that ſome die forthwith, their whole bodies ſuffering convulſions. Moreover it wil kil even the very trees into whoſe roots it is faſtned. Yet *Pliny* affirmes that it is good againſt the paine of the teeth, *Lib. 9 cap. 48.* if the gums bee ſcarified therewith, yea, and it being made into powder with white hellebore, or of it ſelfe, will cauſe teeth to fall out without any pain, or any violence offered to them. This fiſh is good meat, the head and taile excepted; ſome of them have two ſtings, otherſome but one; theſe ſtings are ſharpe like a Saw with the teeth turned towards their heads. The virulency of her ſting. *Oppianus* writes, that their ſtings are more poyſonous than the Perſians arrowes, for the force of the poyſon remaineth, the fiſh being dead, which will kill not onely living creatures, but plants alſo. Fiſhermen, when they catch this fiſh, preſently ſpoile him of his ſting, leſt they ſhould bee hurt therewith. But if by chance they bee hurt therewith, then take they forth his Liver and lay it to the wound; furthermore the fiſh being burnt and made into powder, is the true Antidote of his wound. The Sting-Ray lives in muddy places neare the ſhoare, upon the fiſhes that hee hunteth and catcheth with his ſting, having the teeth thereof turned towards his head for the ſame purpoſe. Hee is not unlike a Ray, and I have here given you his figure.

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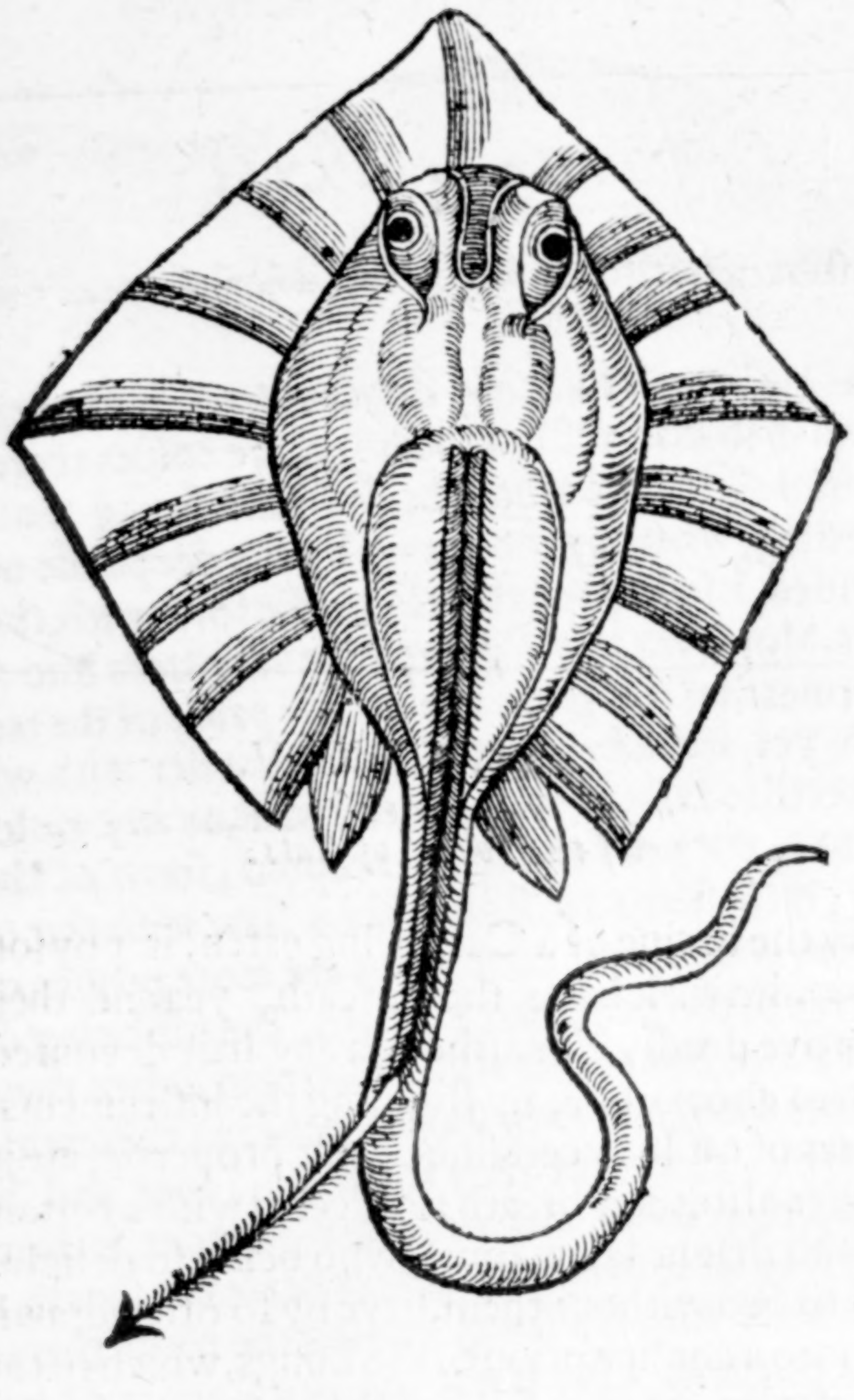
The figure of a Sting-Ray.



Chap. XXXIII.

Of the Lepus marinus, *or Sea-hare.*

Plinv cals the Sea-hare, a maſſe or deformed peece of fleſh. *Galen* ſaith that it is like a Snaile taken forth of the ſhell. It is exceeding poyſonous in the judgement of the Antients; wherefore it is not amiſſe to ſet downe the deſcription of it, leſt wee might eate it at unawares, too earneſtly view it, or ſmell thereto, as alſo that we may uſe it againſt the poyſon thereof; it is an inhabitant not only of the Sea, but alſo of Lakes of Sea-water, eſpecially ſuch as are muddy; it is of the ſame colour as the hair of the land-hare is, it hath a hole in the head, out of which hee putteth a certaine peece of fleſh, and plucks it backe againe when as he is ſeene. *Paulus, Aëtius, Pliny, Galen* and *Nicander*, are of one opinion, and agree in this, that if a woman big with child do too earneſtly look upon one, ſhe will vomit & preſently after abort. They which have drunk this poyſon, ſaith *Dioſcorides*, are troubled with paine in the belly, and their urine is ſtopped. If they doe make water, then is it bloody; they run downe with ſtinking ſweat, which ſmels of fiſh; a cholericke vomiting ſometimes mixed with blood enſues thereon.

The deſcription of the Sea-hare.

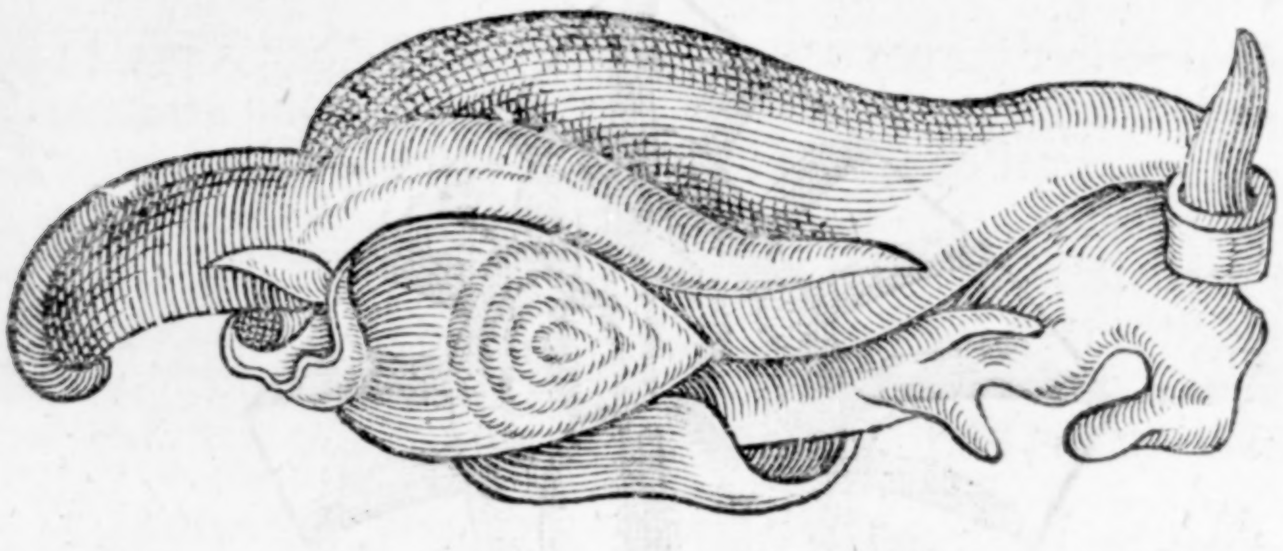
The earneſt beholding of a Sea-hare will cauſe abortion.

Aëtius writes that all their bodies turne yellow, their faces ſwell, and their feete, but chiefly their genitall member, which is the cauſe they cannot make water freely. *Galen* writes that it is the property of the Sea-hare to exulcerate the Lungs. Their Antidote is Aſſes milke, Muskedine, or honyed Wine continually drunken, or a decoction of the roots and leaves of Mallowes. It is good for the falling away of the haire. I have here given you the figure thereof out of *Rondeletius* his book of fiſhes.

The ſymptoms.

The Antidote.

The figure of a Sea-Hare.



Chap. XXXIV.

Of the Poyſon of Cats.

NOt onely the braine of a Cat, being eaten, is poyſonous and deadly to man, but alſo their haire, their breath, yea and their very preſence to ſome prove deadly. For although any hair devoured unawares, may be enough to choake one, by ſtopping the inſtruments of reſpiration, yet the haires of cat by a certaine occult propertie, are judged moſt dangerous in this caſe: beſides alſo, their breath is infected with a certain hurtfull malignitie. For *Mathiolus* ſaith that he knew ſome, who being ſo delighted with Cats, that they could never go to bed without them, have by ſo often drawing in the aire with their breath, fallen into a conſumption of the Lungs, which occaſioned their death. Moreover, it is manifeſt that the very ſight of their eies is hurtfull, which appeares by this, that ſome but ſeeing or hearing them, preſently fall downe in a ſowne; yet I would not judge that to happen by the malicious virulency of the Cat, but alſo by the peculiar nature of the party, and a quality generated with him, and ſent from heaven. When as, ſaith *Mathiolus*, a certaine Germaine in winter time, came with us into a ſtove to ſupper, where as were divers of our acquaintance; a certaine woman, knowing this mans nature, leſt that hee ſhould ſee her kitling which ſhee kept, and ſo ſhould goe away in a chafe, ſhe ſhut her up in a cupboard in the ſame chamber. But for all that hee did not ſee her, neither heard her cry, yet within a little ſpace, when hee had drawne in the aire, infected with the breath of the Cat, that quality of temperament, contrary, or enemy to Cats, being provoked, he began to ſweat, to looke pale, and to cry out (all of us admiring it) *Here lies a Cat in ſome corner or other*; neither could he be quiet untill the Cat was taken away. But ſuch as have eaten the braines of a Cat are taken with often Vertigoes, and now and then become fooliſh and mad: they are helped by procuring vomit, and taking the Antidote againſt this poyſon, that is, halfe a Scruple of Muske, diſſolved and drunke in wine. There bee ſome who preſcribe the confection *Diamoſchum* to bee taken every morning, foure houres before meat. By this you may gather that it is not ſo fabulous that the common ſort report, that Cats will kill or harme children; for lying to their mouthes with the weight of their whole bodies, they hinder the paſſage forth of the fuliginous vapours, and the motion of the Cheſt, and infect and ſtifle the ſpirits of tender infants, by the peſtiferous aire and exhalation which they ſend forth.

A Cats haire moſt ſubject to choake.

The breath of a Cat moſt hurtfull to the lungs.

A hiſtory.

A wonderfull antipathy betweene a man and a Cat.

The Antidote againſt the brains of a Cat.

Cats dangerous for children.

Chap.

CHAP. XXXV.

Of certaine poyſonous Plants.

Apium riſus.

HAving deſcribed the poyſons that come from living creatures, I come to ſpeake of ſuch as are from Plants, beginning with the Sardonian herb, which is alſo called *Apium riſus*: this is a kinde of *Ranunculus* or Crow-foote: (and, as it is thought, the round leaved water Crow-foote, called Marſh-crow-foote or ſpeare-wort) it taketh away the underſtanding of ſuch as eate thereof, and by a certaine diſtention of the nerves, contracts the cheekes, ſo that it makes them looke as if they laughed; from this affect came that proverbiall ſpeech of the Sardonian laughter, taken in evill part. His Bezoar, as one may terme it, is the juice of Balme.

His Antidote.

Napellus, or Monks-hood.

The juice, fruit, and ſubſtance of *Napellus*, taken inwardly, killeth a man the ſame day, or at the furtheſt in three dayes: yea and ſuch as eſcape the deadly force thereof by the ſpeedy and convenient uſe of Antidotes, fall into a hecticke feaver, or conſumption, or become ſubject to the falling ſickneſſe, as *Avicen* affirmeth. And hence it is that barbarous people poyſon their arrowes therewith. For the lippes are forthwith inflamed, and the tongue ſo ſwells, that by reaſon thereof it cannot bee conteined in the mouth, but hangs out with great horrour; their eyes are enflamed, and ſtand forth of their head, and they are troubled with a *Vertigo* and ſowning, they become ſo weake that they cannot ſtirre their legges, they are ſwollen and puffed in their bodies, the violence of the poyſon is ſo great. The Antidote thereof is a certaine little creature like a * Mouſe, which is bred, and lives on the root of *Napellus*, being dryed and drunke in pouder, to the weight of two drammes. In want hereof, you may uſe the ſeed of Raddiſh or Turneps to drinke, and anoint the body alſo with the oile of Scorpions.

Dorycinum and *Solanum manicum*, or deadly Night-ſhade.

Dorycinum and *Solanum Manicum*, or deadly night-ſhade, are not much different in their mortall ſymptomes or effects. *Dorycinum* being drunke, reſembleth milk in taſt, it cauſeth continuall hicketting, it troubleth the tongue with the weight of the humour, it cauſeth blood to bee caſt forth of the mouth, and certaine mucous matter out of the belly, like that which commeth away in the bloody fluxe. A remedy hereto are all ſhell Fiſhes, as well crude as roaſted, alſo ſea-lobſters and crabbes, and the broth or liquor wherein they are boyled, being drunke. Now the root of *Solanum manicum* drunke in the weight of one dram in wine, cauſeth vaine and not unpleaſing imaginations, but double this quantity cauſeth a diſtraction or alienation of the minde for three dayes; but foure times ſo much, kills. The remedies are the ſame as theſe preſcribed againſt *Dorycinum*.

The ſymptoms.

Henbane.

Henbane drunken, or otherwiſe taken inwardly by the mouth, cauſeth an alienation of the minde like drunkenneſs; this alſo is accompanied with an agitation of the body, and exolution of the ſpirits like ſowning. But amongſt others, this is a notable ſymptome, that the patients ſo dote, that they thinke themſelves to be whipped: whence their voice becomes ſo various, that ſomtimes they bray like an aſſe or mule, neigh like a horſe, as *Avicen* writes. The Antidote is piſtick nuts eaten in great plenty, treacle alſo and mithridate diſſolved in ſacke, alſo wormewood, rue and milke.

The Antidote.

Muſhromes.

Of Muſhromes, ſome are deadly and hurtfull of their owne kinde and nature, as thoſe, which broken, preſently become of divers colours, and forthwith putrefie: (ſuch as *Avicen* ſaith thoſe are which be found of a grayiſh or blewiſh colour) others though not hurtfull in qualitie, yet eaten in greater meaſure than is fitting, become deadly; for ſeeing by nature they are very cold and moiſt, and conſequently abound with no ſmall viſcoſity, as the excrementitious phlegme of the earth or trees whereon they grow, they ſuffocate and extinguiſh the heat of the body, as overcome by their quantity, and ſtrangle as if one were hanged, and laſtly kill. Verily I cannot chuſe, but pittying Gourmondizers, who though they know that Muſhromes are

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* Our Author is deceived by the *Arabians*, who (it may bee) miſtook the greeke word, μυῖα, and inſtead thereof reade, μῦν; for a Flye, a Mouſe; for there is no Mouſe to bee found, but whole ſwarmes of Flies, which feede thereon: you may finde the deſcription of an Antidote made with them in *Lobels Stirp. Adverſ. pag.* 302.

Their Antidote

In 5. *epidemi.*

the ſeminary and gate of death, yet doe they with a great deale of doo, moſt greedily devoure them; I ſay, pitying them, I will ſhew them, and teach them the art, how they may feed upon this ſo much deſired diſh, without the endangering of their health. Know therfore that Muſhromes may be eaten without danger, if that they be firſt boyled with wild peares: but if you have no wilde peares, you may ſupply that defect with others which are the moſt harſh, either newly gathered, or dryed in the ſun. The leaves, as alſo the bark of the ſame Tree, are good, eſpecially of the wild; for peares are their Antidote: yet *Conciliator* gives another, to wit, Garlick eaten crude, whereto in like ſort vineger may bee fitly added, ſo to cut and attenuate the tough, viſcous and groſſe humors, heaped up, and in danger to ſtrangle one by the too plentifull eating of Muſhromes, as it is delivered by *Galen*.

Colchicum or meadow-ſaffron

The Antidote.

Ephemerum, which ſome call *Colchicum* or *Bulbus ſylveſtris*, that is, medow ſaffron, being taken inwardly, cauſeth an itching over all the bodie, no otherwiſe than thoſe that are netled, or rubbed with the juice of a Squill. Inwardly they feele gnawings, their ſtomacke is troubled with a great heavineſſe, and the diſeaſe encreaſing, there are ſtreakes of blood mixed with the excrements. The Antidote thereof is womans milke, Aſſes or Cowes milk drunken warme, and in a large quantity.

Mandrage.

The cure.

Mandrage taken in great quantity, either the root or fruit cauſeth great ſleepineſſe, ſadneſſe, reſolution and languiſhing of the body, ſo that after many ſcritches and gripings, the patient falls aſleep in the ſame poſture as hee was in, juſt as if hee were in a Lethargie. Wherefore in times paſt they gave Mandrage to ſuch as were to bee diſmembred. The apples, when as they are ripe, and their ſeeds taken forth, may be ſafely eaten, for being green and with their ſeeds in them, are deadly. For there ariſeth an intolerable heate, which burnes the whole ſurface of the bodie, the tongue and mouth waxe dry, by reaſon whereof they gape continually, ſo to take in the cold aire; in which caſe unleſſe they be preſently helped, they die with convulſions. But they may be eaſily helped, if they ſhall preſently drinke ſuch things as are convenient therefore. Amongſt which, in *Conciliators* opinion, excell radiſh ſeeds eaten with ſalt and bread for the ſpace of three dayes. Sneeſing ſhall be procured, if the former remedy do not quickly refreſh them, and a decoction of Corlander or Penny-royall in faire water ſhall be given them to drinke warme.

Opium. Why not uſed in poyſonings.

The ungratefull taſte of the juice of blacke poppy, which is termed *Opium*, as alſo of Mandrage, eaſily hinders them from being put into meate or drinke, but that they may be diſcerned, and chiefly for that neither of them can kill, unleſſe they be taken in a good quantity. But becauſe there is danger, leſt they bee given in greater quantity than is fitting by the ignorance of Phyſitians, or Apothecaries, you may by theſe ſignes finde the errour.

The ſymptoms.

There enſues heavie ſleepe, with a vehement itching, ſo that the patient oft-times is forced thereby to caſt off his dull ſleepe wherein hee lay, yet keepes his eye-lids ſhut, being unable to open them. But by this agitation there flowes out ſweat, which ſmels of *Opium*, the bodie waxeth pale, the lippes burne, the Jaw-bone is relaxed, they breath little and ſeldome. When as their eyes waxe livid, unleſſe they bee drawne aſide, and that they are depreſſed in their orbe, we muſt know that death is at hand. The remedy againſt this is two drammes of the pouder of *Caſtoreum* given in wine.

Hemlocke.

The ſymptoms.

The Antidote.

In lib. 6. *dioſc.*

Hemlocke drunken, cauſeth *Vertigo's*, troubleth the minde, ſo that the patients may bee taken for mad men; it darkeneth the ſight, cauſeth hicketting, and benums the extreme parts, & laſtly ſtrangles with convulſions, by ſupreſſing or ſtopping the breath of the Arterie. Wherefore at the firſt, as in other poyſons, you muſt endevour to expell it by vomit; then inject glyſters, to expell that is got into the guts; then uſe wine without mixture, which is very powerfull in this caſe. *Peter Aponenſis* thinks the Bezoar or Antidote thereof to bee a potion of two drams of Treacle, with a decoction of *Dictamnus* or Gentian in wine. He which further deſires to enform himſelfe of the effects of Hemlock, let him read *Mathiolus* his commentary upon *Dioſcorides*, where as he treats of the ſame ſubject.

Aconitum.

Aconitum called ſo of *Aconis* a towne of the *Periendines*, where as it plentifully growes. According to *Mathiolus*, it kils Wolves, Foxes, Dogges, Cats, Swine, Panthers,

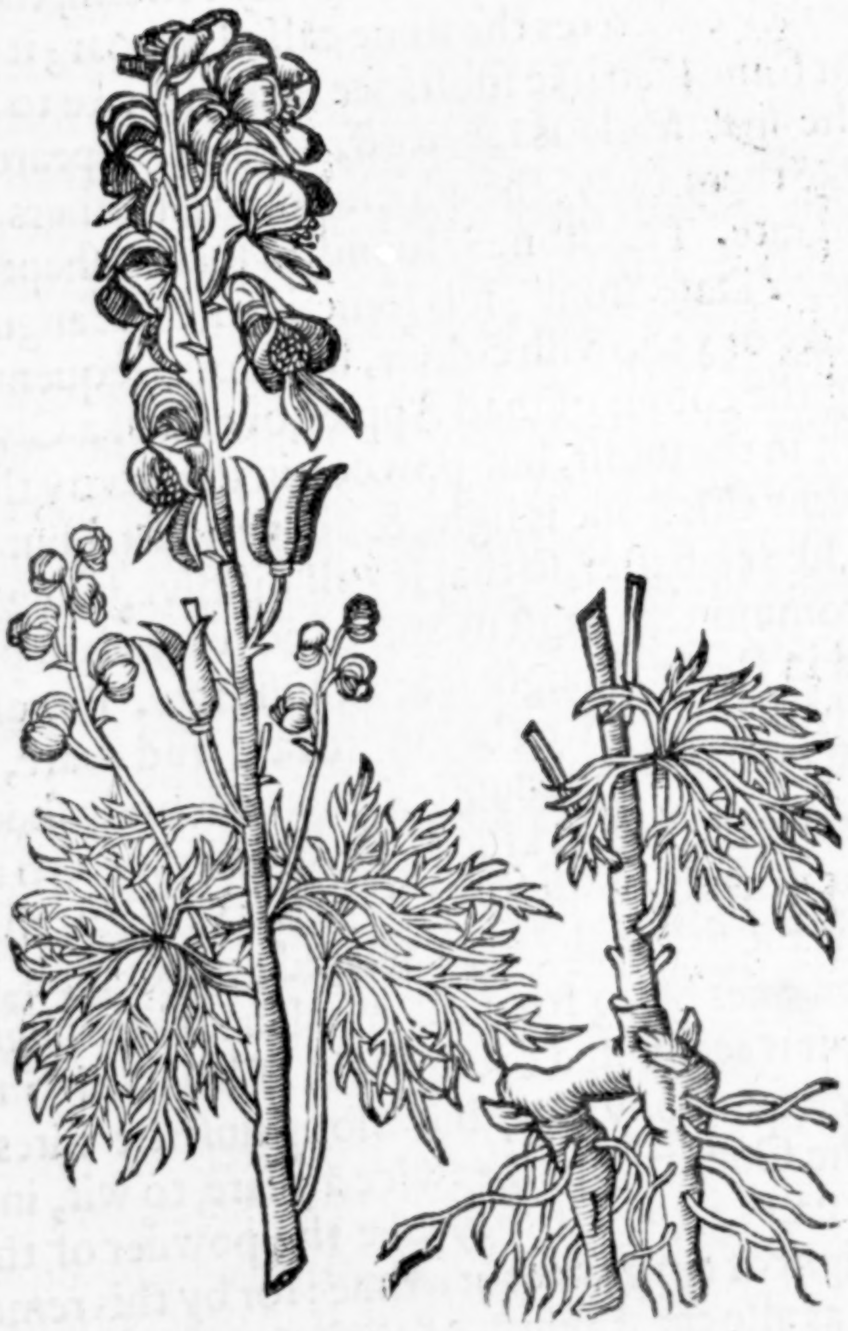
thers, Leopards, and all wilde beaſts, mixed with fleſh, and ſo devoured by them, but it kills mice by onely ſmelling thereto. Scorpions, if touched by the roote of Aconite, grow numme and torpid, and ſo die thereof; arrowes or darts dipped therein, make uncurable wounds. Thoſe who have drunke Aconite, their tongue forthwith waxeth ſweet with a certaine aſtriction, which within a while after turneth to bitterneſſe; it cauſeth a *Vertigo*, and ſhedding of teares, and a heavineſſe or ſtraitneſſe of the cheſt and parts about the heart; it makes them breake wind downewards, and makes all the body to tremble. *Pliny* attributes ſo great celerity and violence to this poyſon, that if the genitalls of female creatures bee touched therewith, it will kill them the ſame day; there is no preſenter remedy than ſpeedy vomiting after the poiſon is taken. But *Conciliator* thinks *Ariſtolochia* to be the Antidote thereof. Yet ſome have made it uſefull for man by experimenting it againſt the ſtinging of Scorpions, being given warme in wine. For it is of ſuch a nature, that it killeth the party unleſſe it finde ſomething in him to kill; for then it ſtrives therewith as if it had found an adverſary. But this fight is onely when as it finds poyſon in the body; and this is marvellous, that both the poiſons being of their own nature deadly, ſhould dye together, that man may by that meanes live. There are divers ſorts thereof, one whereof hath a flower like an helmet, as if it were armed to mans deſtruction; but the other here delineated hath leaves like to ſowes-bread, or a cucumber, and a root like the taile of a ſcorpion.

Lib.27.cap.2.

Aconite good againſt the poyſon of Scorpions.

The differences

The figure of a certaine kind of Aconite.



Trees alſo are not without poyſon, as the Yew and Walnut tree may witneſſe: Cattell, if they feede on the leaves of Yew, are killed therewith. * But men, if they ſleepe under it or ſit under the ſhadow thereof, are hurt therewith, and oft-times dye thereof. But if they eat it, they are taken with a bloudy fluxe, and a coldneſſe over all their bodyes, and a kinde of ſtrangling or ſtoppage of their breath. All which things the Yew cauſeth not ſo much by an elementary and cold quality, as by a certaine occult malignity, whereby it corrupteth the humours, and ſhaveth

The Yew.

* This is true in ſome countries, as in Provence, Italy, Greece, &c. but it is not ſo here with us in England, as both Lobell & daily exerience can teſtifie.

The Antidote.

The Wall nut tree.

the guts. The ſame things are good againſt this, as we have ſet downe againſt Hemlock; *Nicander* affirmes, that good wine being drunken is a remedy thereto. There is alſo malignity in a Wall-nut tree, which **Grevinus** affirmes that he found by experience, whileſt hee unawares ſate under one & ſlept there in the midſt of Summer. For waking, he had a ſenſe of cold over all his body, a heavineſſe of his head, and paine that laſted ſixe dayes. The remedies are the ſame as againſt the Yew.

Chap. XXXVI.

Of Bezoar, and Bezoarticke medicines.

What is poiſon.

A ſigne of true Bezoar.

The uſe of Bezoar.

FOR that we have made mention of Bezoar, in treating of the remedies of poyſons, I judge I ſhall not doe amiſſe, if I ſhall explaine, what the word meanes, and the reaſon thereof. Poyſon abſolutely taken is that which kils by a certaine ſpecifick antipathy contrary to our nature. So an Antidote or Counter-poyſon is by the Arabians in their mother tongue termed Bedezahar, as the preſervers of life. This word is unknowne to the Greekes and Latines, and in uſe onely with the Arabians and Perſians, becauſe the thing it ſelfe firſt came from them, as it is plainely ſhewed by *Garcias ab horto*, Phyſician to the Vice-Roy of the Indies, in his hiſtory of the Spices and Simples of the Eaſt-Indies. In Perſia (ſaith hee) and a certaine part of India is a certaine kinde of Goate called Pazain (wherefore in proper ſpeaking, the ſtone ſhould bee termed Pazar, of the word Pazain, that ſignifies a Goate; but wee corruptly terme it Bezar or Bezoar) the colour of this beaſt is commonly reddiſh, the height thereof indifferent, in whoſe ſtomack concretes the ſtone called Bezoar; it growes by little and little about a ſtraw or ſome ſuch like ſubſtance in ſcailes like to the ſcailes of an onion, ſo that when as the firſt ſcaile is taken off, the next appeares more ſmooth and ſhining as you ſtill take them away, the which amongſt others is the ſigne of good Bezoar and not adulterate. This ſtone is found in ſundry ſhapes, but commonly it reſembles an Acorne or Date-ſtone; it is ſometimes of a ſanguine colour, and otherwhiles of a hony-like or yellowiſh colour, but moſt frequently of a blackiſh or darke greene, reſembling the colour of mad Apples, or elſe of a Civet Cat. This ſtone hath no heart nor kernell in the midſt, but powder in the cavity thereof, which is alſo of the ſame faculty. Now this ſtone is light, & not very hard, but ſo that it may eaſily be ſcraped, or raſped like alabaſter, ſo that it will diſſolve, being long macerated in water; at firſt it was common amongſt us, and of no very great price, becauſe our people who trafficked in Perſia, bought it at an eaſie rate. But after that the faculties thereof were found out, it began to bee more rare and deare, and it was prohibited by an Edict from the King of the countrey, that no body ſhould ſell a Goate to the ſtranger Merchants, unleſſe he firſt killed him, and tooke forth the ſtone, & brought it to the King. Of the notes by which this ſtone is tryed, (for there are many counterfeits brought hither) the firſt is already declared; the other is, it may bee blowne up by the breath, like an oxes hide; for if the wind breake through, and doe not ſtay in the denſity thereof, it is accounted counterfeit. They uſe it, induced thereto by our example, not onely againſt poyſons, but alſo againſt the bites of venemous beaſts. The richer ſort of the Countrey purge twice a yeare, to wit, in March and September; and then, five daies together they take the powder of this ſtone macerated in Roſe-water, the weight of ten graines at a time: for by this remedy they thinke their youth is preſerved, as alſo the ſtrength of their members. There be ſome who take the weight of thirty graines; yet the more wary exceed not twelve grains. The ſame author addeth that he uſeth it with very good ſucceſſe in inveterate melancholy diſeaſes, as the itch, ſcab, tetters & leproſie; therefore by the ſame reaſon it may well be given againſt a quartaine feaver. Beſides, hee affirmeth for certaine that the powder conteined in the midſt of the ſtone, put upon the bites of venemous beaſts, preſently freeth the patient from the danger of the poyſon, as alſo applied to peſtilent Carbuncles when they are opened, it drawes forth the venome. But becauſe the ſmall pocks and meazles are familiar in the Indies, and oft-times dangerous, it is there given with good ſucceſſe, two graines each day in Roſe-water. *Mathiolus* ſubſcribeth to this opinion of *Garcias*, witneſſing that hee hath found it by frequent experience, that this ſtone by much exceeds not only other ſimple medicines of this kind, but alſo ſuch as are termed *theriacalia*, and what other Antidotes ſoever. Hereto alſo conſents *Abdalanarach*; Wee (ſaith he) have ſeene the ſtone which they call Bezahar, with the ſonnes of *Almirama* the obſerver of the Law of God; with which ſtone hee bought a ſtately and almoſt princely houſe at Corduba.

Lib. 5. in Dioſ. cap. 73.

Some yeares agoe a certaine Gentleman, who had one of theſe ſtones which hee brought out of Spaine, bragged before King *Charles* then being at Clermont in Auverne, of the moſt certaine efficacie of this ſtone againſt all manner of poyſons. Then the King asked of mee, whether there were any Antidote which was equally and in like maner prevalent againſt all poiſons? I anſwered, that nature could not admit it; for neither have all poyſons the like effects, neither doe they ariſe from one cauſe; for ſome worke from an occult and ſpecifick property of their whole nature, others from ſome elementary quality which is predominant. Wherefore each muſt be withſtood with its proper and contrary Antidote, as to the hot, that which is cold, and to that which aſſailes by an occult proprietie of forme, another which by the ſame force may oppugne it, and that it was an eaſie matter to make triall hereof on ſuch as were condemned to bee hanged. The motion pleaſed the King; there was a Cooke brought by the Jailor who was to have been hanged within a while after for ſtealing two ſilver diſhes out of his maſters houſe. Yet the King deſired firſt to know of him, whether hee would take the poiſon on this condition, that if the Antidote which was predicated to have ſingular power againſt all manner of poiſons, which ſhould bee preſently given him after the poiſon, ſhould free him from death, that then he ſhould have his life ſaved. The Cooke anſwered chearfully, that he was willing to undergo the hazzard, yea, and greater matters, not only for to ſave his life, but to ſhun the infamy of the death he was like to be adjudged to. Therefore he then had poyſon given him by the Apothecarie that then waited, and preſently after the poyſon, ſome of the Bezahar brought from Spain, which being taken down, within a while after hee began to vomit, and to avoid much by ſtoole with grievous torments, and to cry out that his inward parts were burnt with fire. Wherefore, being thirſty, and deſiring water, they gave it him; an houre after, with the good leave of the Jaylor, I was admitted to him; I find him on the ground going like a beaſt upon hands and feet, with his tongue thruſt forth of his mouth, his eyes fierie, vomiting, with ſtore of cold ſweats, and laſtly, the bloud flowing forth by his eares, noſe, mouth, fundament and yard. I gave him eight ounces of oile to drinke, but it did him no good, for it came too late. Wherefore at length hee died with great torment and exclamation, the ſeventh houre from the time that hee tooke the poiſon being ſcarcely paſſed. I opened his body in the preſence of the Jailor and foure others, and I found the botome of his ſtomacke blacke and dry, as if it had beene burnt with a Cautery; whereby I underſtood he had ſublimate given him; whoſe force the Spaniſh Bezahar could not repreſſe, wherefore the King commanded to burne it.

A hiſtory.

No one thing can be an Antidote againſt all Poyſon.

The cauſtick force of ſublimate.

Chap. XXXVII.

Of Minerall Poyſons.

Minerals or mettals are either ſo taken forth of the bowels of the earth, or elſe from fornaces. Of theſe many are poiſonous, as arſenicke, ſublimate, plaiſter, ceruſſe, lytharge, verdegreace, orpiment, filings of Iron, braſſe, the load-ſtone, lime, and the like. Such as have taken ſublimate, the tongue and jawes become ſtraightned and rough, as if they drunke the juice of unripe ſervices: you cannot amend this aſperity with lenitive gargariſmes but with much labour and time; for as ſoone as it deſcends into the ſtomack, it ſticketh to it. Therefore preſently after it frets and exulcerates; it cauſeth unquenchable

The ſymptomes of ſuch as have taken ſublimate.

able thirſt, and unexplicable torments; the tongue is ſwolne, the heart faints, the urine is ſuppreſt, the cheſt can ſcarce performe the office of breathing, the belly is griped, and ſo great paines happen to the other extreme parts, that unleſſe they bee helped, the patient will die; for preſently will grow upon them, unleſſe it be ſpeedily hindred, the devouring and fierie furie of the poyſon, rending or eating into the guts and ſtomacke, as if they were ſeared with an hot iron, and bloud floweth forth of the ears, noſe, mouth, urenarie paſſage and fundament, and then their caſe is deſperate. Theſe and who elſe ſoever ſhall take any corroding poyſon, ſhall be cured with the ſame remedies, as thoſe that have taken ***Cantharides***.

Verdegreace.

Verdegreace ſo ſtops the inſtruments of reſpiration, that it ſtrangles ſuch as have taken it. The cure is performed by the ſame remedies as helpe thoſe that have taken Arſenick.

Litharge.

Litharge cauſeth a heavineſſe in the ſtomack, ſuppreſſeth the urine, makes the body ſwelled and livide. Wee remedy this, by giving a vomit preſently, then after it pidgeons dung mixed in ſtrong wine, and ſo drunken. ***Peter Aponenſis*** wiſheth to give oile of ſweet almonds and figs. Alſo it is good to give relaxing and humecting glyſters, and to anoint the belly with freſh butter, or oile of lillies.

The ſcailes of braſſe.

The ſcailes of braſſe drunke by troubling the ſtomacke, cauſe a caſting and ſcouring. The remedie is, if the patient forthwith vomit, if he enter into a bath made of the decoction of ſnailes, if he annoint his belly and breaſt with butter and oile of lillies, and inject laxative and humecting glyſters.

The Loadſtone.

The Load-ſtone makes them mad that take it inwardly. The Antidote thereof is the powder of gold and an emerald drunk in ſtrong wine, and glyſters of milke and oile of ſweet almonds.

Filings of Lead & ſcails of Iron.

The filings of lead, and the ſcailes or refuſe of iron, cauſe great torment to ſuch as take them downe. The which we helpe with much milke and freſh butter diſſolved therein, or with oile of ſweet almonds drawne without fire, with relaxing and humecting glyſters uſed untill the paine be perfectly aſwaged.

Arſnick, Roſeaker or Ratſbane.

Riſagallum, Roſeaker or Ratſ-bane, becauſe it is of a moſt hot and dry nature, induces thirſt and heat over all the body, and ſo great colliquation of all the humours, that although the patients by medicines ſpeedily given eſcape death, yet can they not during the reſidue of their lives, uſe their members as they formerly did, being deſtitute of their ſtrength, by reaſon of the great dryneſſe and contraction of the joynts. The Antidote thereof is oyle of pine kernels ſpeedily given, and that to the quantity of halfe a pint; then procure vomit, then give much milke to drink, and glyſters of the ſame, and let them ſup up fat broths.

Unquenched Lime and Orpiment.

Unquencht Lime and ***Auripigmentum***, or Orpiment drunke, gnaw the ſtomacke and guts with great tormenting paine, and cauſe unquenchable thirſt, an aſperity of the jawes and throat, difficulty of breathing, ſtoppage of the urine, and a bloudy flux. They may bee helped by all fat, humecting, and relaxing things which retund the acrimonie, by lenitive potions, and ſuch things as lubricate the belly; as alſo by creames, and the mucilages of ſome ſeeds, as with a decoction of the ſeeds of Line, mallowes, marſh-mallowes and other ſuch things ſet downe at large in the cure of *Cantharides*.

Aqua fortis.

Theſe exceeding acride and ſtrong waters wherewith Gold-ſmithes and Chymiſts ſeparate gold from ſilver, being taken into the body, are hard to cure, becauſe they are forthwith diffuſed over all the body, firſt burning the throat and ſtomacke. Yet it may be helped by the meanes preſcribed againſt unquenched Lime and Orpiment.

Ceruſſe.

Ceruſſe cauſeth hicketting and a cough, makes the tongue dry, & the extreme parts of the body numbe with cold, the eyes heavie to ſleepe. The patients very often in the midſt of the day ſee ſome vain phantaſie or apparition, which in deed is nothing; they make a blacke and oft-times bloudy water, they die ſtrangled unleſſe they bee helped. The Antidote, in the opinion of ***Aëtius*** and ***Avicen***, is ſcammonie drunk in new wine, or hony and wine, and other diuretick things, and ſuch things as procure vomit, and purge by ſtoole.

Plaiſter.

Plaiſter, becauſe it concreteth and becommeth ſtony in the ſtomacke, cauſeth ſtrangula-

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ſtrangulation by ſtraitening and ſtopping the inſtruments that ſerve for breathing. The patients receive cure by the ſame remedies, as thoſe who have eaten muſhroms, or drunke Ceruſſe: you muſt adde Gooſe-greaſe in the glyſters, and anoint the belly with oyle of lillies and butter.

Chap. XXXVIII.

Of Quick-ſilver.

Quick-ſilver is ſo called becauſe it reſembleth ſilver in the colour, and is in perpetuall motion, as if it had a ſpirit or living ſoule. There is a great controverſie amongſt authors concerning it. For moſt of them affirme it hot, amongſt whom is *Galen*, *Halyabas*, *Rhaſes*, *Ariſtotle*, *Conſtantine*, *Iſack*, *Platearius*, *Nicholas Maſſa*: they maintain their opinion by an argument drawn from things helping and hurting; beſides from this, that it is of ſuch ſubtle parts, that it penetrates, diſſolves, and performeth all the actions of heate upon denſe and hard mettals; to wit, it attenuateth, incideth, dryeth, cauſeth ſalivation by the mouth, purgeth by the ſtoole, moveth urine and ſweat over all the body, neither doth it ſtirre up the thinner humours onely, but in like ſort the groſſe, tough and viſcous, as thoſe which have the *Lues Venerea* find by experience, uſing it either in ointments or plaſters.

The reaſon why it is ſo called.

Lib. 4. ſimpl. in 2. practic. cap. 148. 3. *ad Alman.* 4. *Meteor.*

Others affirme it very cold and moyſt, for that put into emplaſters and ſo applyed, it aſſwageth paine by ſtupefaction, hindring the acrimony of puſtles and cholerick inflammations. But by its humidity it ſofteneth ſcirrhous tumours, diſſolveth and diſſipateth knots and *tophous* knobs; beſides, it cauſeth the breath of ſuch as are anointed therewith to ſtinke, by no other reaſon, than that it putrefies the obvious humours by its great humidity. *Avicens* experiment confirmes this opinion, who affirmeth, that the bloud of an Ape that drunke Quickſilver, was found concrete about the heart, the carcaſſe being opened. *Mathiolus*, moved by theſe reaſons, writes that Quickſilver killeth men by the exceſſive cold and humide quality, if taken in any large quantity, becauſe it congeales the bloud and vitall ſpirits, and at length the very ſubſtance of the heart, as may bee underſtood by the hiſtory of a cetaine Apothecary, ſet downe by *Conciliator*; who, for to quench his feaveriſh heat, in ſtead of water, drunke off a glaſſe of Quickſilver, for that came firſt to his hands; hee dyed within a few houres after, but firſt hee evacuated a good quantity of the Quickſilver by ſtoole, the reſidue was found in his ſtomack being opened, and that to the weight of one pound; beſides, the bloud was found concrete about his heart. Others uſe another argument to prove it cold, and that is drawne from the compoſition thereof, becauſe it conſiſts of lead and other cold mettals. But this argument is very weak. For unquencht Lime is made of flints and ſtony matter, which is cold, yet neverthe-leſſe it exceeds in heat. *Paracelſus* affirmeth that quickſilver is hot in the interior ſubſtance, but cold in the exterior, that is, cold as it comes forth of the mine. But that coldneſſe to bee loſt as it is prepared by art, and heat onely to appeare and bee left therein, ſo that it may ſerve in ſtead of a tincture in the tranſmutation of mettals. And verily it is taken for a rule amongſt Chymiſts, that all metals are outwardly cold, by reaſon of the watery ſubſtance that is predominant in them, but that inwardly they are very hot, which then appeares when as the coldneſſe together with the moyſture is ſegregated, for by calcination they become cauſtick. Moreover many account quickſilver poyſon, yet experience denyes it. For *Marianus Sanctus Baralitanus* tels that hee ſaw a woman, who for certaine cauſes and affects, would at ſeverall times drink one pound and an halfe of quickſilver, which came from her againe by ſtoole without any harme. Moreover he affirmeth that hee hath knowne ſundry who in a deſperate Cholick (which they commonly call *miſerere mei*) have beene freed from imminent death, by drinking three pounds of quickſilver with water only. For by the weight it opens and unfolds the twined or bound up gut, and thruſts forth the hard and ſtopping excrements; he addeth that others have found this medicine

In l. 6. Dioſ. c. 28.

A hiſtorie.

Lib. 4. de nat. rerum.

Tract. de caſu & offen.

dicine effectuall againſt the cholick, drunke in the quantity of three ounces. *Antonius Muſa* writes, that hee uſually giveth quickſilver to children ready to dye of the wormes. *Avicen* confirmeth this, averring that many have drunke quickſilver without any harme, wherefore hee mixeth it in his ointments againſt ſcaules and ſcabs in children; whence came that common medicine amongſt the countrey people to kill lice by anointing the head with quickſilver mixed with butter or *axungia*. *Mathiolus* affirmeth that many think it the laſt and chiefeſt remedy to give to women in travaile that cannot bee delivered. I proteſt, to ſatisfie my ſelfe concerning this matter, I gave to a whelpe a pound of quickſilver, which being drunke downe, it voyded without any harme by the belly. Whereby you may underſtand that it is wholly without any venemous quality. Verily it is the onely and true Antidote of the *Lues Venerea*, and alſo a very fit medicine for maligne ulcers, as that which more powerfully impugnes their malignity than any other medicines that worke onely by their firſt qualities. Beſides, againſt that contumacious ſcabbe, which is vulgarly called *Malum ſancti manis*, there is not any more ſpeedy or certaine remedy. Moreover *Guido* writes, that if a plate of lead bee beſmeared or rubbed therewith, and then for ſome ſpace laid upon an ulcer, and conveniently faſtned, that it will ſoften the callous hardneſſe of the lips thereof, and bring it to cicatrization, which thing I my ſelfe have oftimes found true by experience.

Quickſilver good for women in travaile.

For the diſeaſe called *Malum ſancti manis*.

Certainely before *Guido*, *Galen* much commended quickſilver againſt maligne ulcers & cancers. Neither doth *Galen* affirm that lead is poyſonous (which many affirm poyſonous, becauſe it conſiſts of much quickſilver) but hee onely ſaith thus much, that water too long kept in leaden pipes & ciſternes, by reaſon of the droſſineſſe that it uſeth to gather in lead, cauſeth bloudy fluxes, which alſo is familiar to braſſe and copper. Otherwiſe many could not without danger beare in their bodies leaden bullets during the ſpace of ſo many yeares, as uſually they doe. It is declared by *Theodoricke Herey* in the following hiſtories, how powerfull quickſilver is to reſolve and aſſwage paines and inflammations. Not long ſince, (ſaith hee) a certaine Doctor of Phyſick his boy was troubled with *parotides*, with great ſwelling, heat, pain & beating; to him, by the common conſent of the Phyſicians there preſent, I applyed an anodine medicine, whoſe force was ſo great, that the tumor manifeſtly ſubſided at the firſt dreſſing, and the paine was much aſſwaged. At the ſecond dreſſing all the ſymptomes were more mitigated. At the third dreſſing, I wondring at the ſo great effects of an Anodine Cataplaſme, obſerved that there was quickſilver mixed therewith, and this happened through the negligence of the Apothecarie, who mixed the ſimple Anodine medicine preſcribed by us, in a mortar wherein but a while before he had mixed an oyntment whereinto quickſilver entred, whoſe reliques, and ſome part thereof yet remained therein. This which once by chance ſucceeded well, I afterwards wittingly and willingly uſed to a certaine Gentlewoman troubled with the like diſeaſe, poſſeſſing all the region behind the eares, much of the throate, and a great part of the cheeke, when as nature helped by common remedies, could not evacuate neither by reſolution nor ſuppuration, the conteined matter greatly vexing her with paine and pulſation. I to the medicine formerly uſed, by the conſent of the Phyſicians, put ſome quickſilver, ſo within a few dayes, the tumour was digeſted and reſolved. But ſome will ſay, it reſolves the ſtrength of the nerves and limbs, as you may ſee by ſuch as have beene anoynted therewith for the *Lues venerea*, who tremble in all their limbs during the reſt of their lives. This is true, if any uſe it too intemperately without meaſure, and a diſeaſe that may require ſo great a remedy; for thus we ſee that Gilders, Plumbers and ſuch as digge in mines, by the continuall aſcent of the vapours of quickſilver to the braine, the fountaine of the nerves, by reſolving the ſpirits, and diſſipating the radicall and ſubſtantificke moyſture, maketh them ſubject to the trembling of their joints. Verily if it bee killed and incorporate with hogs greace, and a liſt beſmeared therewith, which may encompaſſe the body like a girdle, it will drive away lice, fleas and *cimices*; and anoynted about the navell, it kils the wormes in the guts. There are two ſorts of quickſilver, the one naturall, the other artificiall. The naturall is found running or flowing in the veins and bowels of the earth, and amongſt metals, and in the fornaces of ſilver mines. The Artificiall

Lib. 7. de comp. med. ſecund. loc. Againſt malign ulcers.

Againſt the *Parotides*.

Againſt lice & fleas &c.

The kinds thereof.

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ficiall is made of *minium* (as it is in *Vitruvius*) and of the powder of Ivory. Alſo it is probable that by art it may bee extracted out of all metals, but chiefly out of Lead and *Cinnabaris*. You may eaſily diſtinguiſh theſe kindes by the dull and blackiſh colour, tough and groſſe ſubſtance, which as it runs, leaves an impreſſion like melted greace, being as it were the excrement of lead. The beſt quickſilver of all is pure, cleare, thin and very white: it may bee cleanſed with the droſſe of Lead, and becomes more thin, being boyled in ſharpe vinegar, with ſage, roſemary, time, lavander. Or elſe give it by a pound at a time to a whelpe, to drinke downe, and being caſt forth by it, boyle it againe in vinegar, for thus it hath wondrous faculties, and fitly given produceth marvellous effects; nothing is more contrary thereto than fire. For quickſilver, though of its owne nature ponderous, flyeth upwards by the force of the fire, and forſaketh gold by that meanes, than which nothing is more friendly to it.

How to purifie it.

CHAP. XXXIX.

Of the Unicornes Horne.

THere are very many at this day who thinke themſelves excellently well armed againſt poyſon and all contagion, if they be provided with ſome powder of Unicornes horne, or ſome infuſion made therewith. Therefore I have thought it good to examine more diligently how much truth this inveterate, and grounded opinion hath. The better to performe this taske, I will propound three heads, whereto I will direct my whole diſcourſe. The firſt ſhall be of the ſignification of this word Unicorn. The ſecond, whether there be any ſuch thing really and truely ſo called, or whether it bee not rather imaginary; like as the *Chymera* and *Tragelaphus*? The third, whether that which is ſayd to be the horne of ſuch a beaſt, hath any force or faculty againſt poyſons? For the firſt, that is, the name, it is ſomewhat more obſcure what the word (*being Licorne*) in French may ſignifie, than what the Latine or Greek word is. For the French name is further from the word and ſignification; but it is ſo clear and manifeſt, that this word *Unicornis* amongſt the Latines ſignifieth a beaſt having but one horn, as it is vulgarly known, the ſame thing is meant by the Greek word *Monoceros*. But now for the ſecond, I thinke that beaſt that is vulgarly called & taken for an Unicorn, is rather a thing imaginary than really in the world. I am chiefly enduced to beleeve thus, by theſe conjectures. Becauſe of thoſe who have travelled over the world, there is not one that profeſſeth that ever he did ſee that creature. Certainly the Romans conquering the world, & being moſt diligent ſearchers after all things which were rare and ſo excellent, if any where in any corner of the world, this beaſt could have been found, they would have found it out, and engraven it upon their coynes, or Armes, as they did Crocodiles, Elephants, Eagles, Panthers, Lyons, Tygers, and other creatures unknowne to theſe countryes. For theſe that have written of the Unicorn, either that they have heard, or that hath been delivered by tradition, or what they in their owne mindes and fancies have conceived, you ſhall ſcarce finde two that agree together, either in the deſcription of the body, or in the nature and condition of her. *Pliny* writes, that Unicornes are for the faſhion of their bodies like to an horſe; that is, as *Cardane* interprets it, of the bigneſſe of a horſe, with the head of an Hart, the feet of an Elephant, the taile of a Boare, with one black horne in the midſt of his forehead, of the length of two cubits. *Munſter*, who (as *Mathiolus* jeſts) never ſaw Unicornes beſides painted ones, doth on the contrary affirme them not to be of the bigneſſe of an horſe, but of an hind calfe of three moneths old, not with feet like an Elephant, but cleft like thoſe of goats, with an horne not only of two, but oft times of three cubits long, of a weazell colour, with a necke not very long, nor very hairy, but having few and ſhort haires hanging to the one ſide of the necke, the legs are leane and ſmall, the buttocks high, but very hairy. *Cardane* diſſenting from both theſe, writes, that hee hath an horne in the midſt of his forehead, but that it is onely the length of three fingers,

What the name imports.

That there is no ſuch beaſt as an Unicorne.

Lib.8.cap.21.

Munſters opinion concerning Unicornes.

Tom. 1. lib. 5. Cap. 5. coſmogr.

fingers. *Andrew Thevet* mentions an Unicorne ſeene by a certaine Turkiſh Sangjach, which was of the bigneſſe of a Bull of five or ſixe moneths old, and had one horne, but that not in the midſt of the forehead, but upon the top of the crowne of the head; he was legg'd and footed like an Aſſe, but longer haired, and had eares not much unlike the Rangifer, a beaſt not unknowne in the ſubpolare or northern countries.

Vartomans opinion of the nature of the Unicorne.

What the ordinary Unicorns hornes are.

The Unicornes horne is not effectuall againſt poyſon.

Lib. de ponder. cap. 19. Hornes and bones not effectuall unleſſe to dry.

Thus various therefore is the report concerning the ſhape of this Beaſt. Neither is there leſſe difference concerning her nature and conditions. For *Pliny* writes that the Unicorne is a moſt fierce beaſt, and hath a great bellowing voice, and that ſhee cannot therefore be taken alive. *Cardane* renders a reaſon of this fierceneſſe, Becauſe (ſaith he) it inhabits the deſarts of *Aethiopia*, a region ſqualide, and filthy, abounding with toads and ſuch like venemous creatures. Others on the contrary affirme her to bee of a moſt milde, amiable, and gentle nature of all others, unleſſe one purpoſely offend her, or uſe her too harſhly; for ſeeing ſhee feeds not by ſtooping her head to the ground, becauſe ſhee is hindered therefrom by the length of her horne, ſhe muſt neceſſarily feed upon the fruit that hangeth upon trees; out of cratches or mans hand ſhe fearleſly and harmeleſly takes all manner of fruits, herbs, ſheaves of corn, apples, peares, oranges and pulſe. And herein they have proceeded ſo farre, that they feign they will love Virgins, entiſed by their beauty, ſo that ſtayed in the contemplation of them, and allured by their entiſements, they by this meanes are often taken by hunters. In this opinion is *Lewes Vartoman*, who denies that Unicornes are wild or fierce; for he ſaith that he ſaw two, which were ſent out of *Aethiopia* to the Sultan, who kept them ſhut up in Pennes, in *Mecha*, a city of *Arabia fœlix*, renowned by the Sepulcher of *Mahomet*. *Thevet* travailing thither, tels that he diligently enquired of the inhabitants, what their opinion was of ſuch a beaſt, yet could he never heare any tidings thereof. Whence it is eaſie to diſcerne, that ſuch beaſts have neither beene in our, nor in *Vartomans* times. The ſo great variety of diſſenting opinions, eaſily induceth me to beleeve that this word, Unicorne, is not the proper name of any beaſt in the world, and that it is a thing onely feigned by Painters, and Writers of naturall things, to delight the readers and beholders. For as there is but one right way, but many by-waies and windings, ſo the ſpeech of truth is but one, and that alwaies ſimple and like it ſelfe; but that of a lye is divers, and which may eaſily refell it ſelfe, by the repugnancie and incongruity of opinions, if one ſhould ſay nothing. What therefore (will ſome ſay) of what creatures are theſe hornes, which we ſee wholly different from others, if they be not of Unicorns? *Thevet* thinks them nothing elſe than Elephants bones turned and made into the faſhion that wee ſee them; for thus in the Eaſtern countreies, ſome crafty merchants and cunning companions turne, hollow, and being ſoftened, draw to what length they pleaſe the teeth of the fiſh Roharde, which lives in the Red and Æthiopian Sea, and being ſo handled, they ſell them for Unicornes horne. Verily that which is termed Unicornes horne being burnt, ſends forth a ſmell like to Ivory. Now *Cardanus* affirmes that the teeth and bones of Elephants made ſoft by art, may bee drawne forth, and brought into what forme you pleaſe, like as Oxe bones are. For what is there in the world which the thirſting deſire of gold will not make men to adulterate and counterfeit? But it is time that we come to the third ſcope. Grant there be Unicornes, muſt it therefore follow that their hornes muſt be of ſuch efficacy againſt poyſons? If we judge by events, and the experience of things, I can proteſt thus much, that I have often made tryall thereof, yet could I never find any good ſucceſſe in the uſe thereof againſt poiſons, in ſuch as I have had in cure. If the matter muſt bee tryed by witneſſes and authorities, a great part of the Phyſitians of better note have long ſince bid it adieu, and have detracted from the divine and admirable vertues for which it formerly was ſo much deſired. And this they have done, moved thereto by many juſt, but two eſpeciall reaſons. The firſt is of *Rondeletius*, who in this caſe affirmes that horns are endued with no taſte nor ſmell; and therefore have no effect in phyſicke, unleſſe it bee to dry. Neither (ſaith hee) am I ignorant that ſuch as have them, much predicate their worth, ſo to make the greater benefit and gaine by them, as of the ſhavings or ſcrapings of Unicornes horne, which they ſell for the weight in gold, as that which is ſingular good againſt poyſons and wormes, which things I thinke Harts-horne and Ivory doe no leſſe effectually performe; which is the cauſe why for the ſame diſeaſe, and with the like ſucceſſe, I preſcribe Ivory to ſuch as are poor, and Unicornes horn to the rich, as that they ſo much deſire. This is the opinion of *Rondeletius*, who without any difference was wont for Unicornes horne to preſcribe not onely Hartſ-horn or Ivory, but alſo the bones of Horſes and Dogges, and the ſtones of Myrabalanes. Another reaſon is, that whatſoever reſiſts poyſon is cordiall, that is, fit to ſtrengthen the heart, which is chiefly aſſailed by poyſons; but nothing is convenient to ſtrengthen the heart, unleſſe it bee by laudible blood or ſpirit, which two are onely familiar to the heart, as being the work-houſe of the arterious blood and vitall ſpirits. For all things are preſerved by their like, as they are deſtroyed by their contraries; for all things that generate, generate things like themſelves. But Unicornes horne, as it conteines no ſmell, ſo neither hath it any aëry parts, but is wholly earthy and dry; neither can it bee converted into blood by the digeſtive faculty, for as it is without juice, ſo is it without fleſh. For as it cannot bee turned into *Chylus*, ſo neither is it fit to become *Chymus* (that is) juice or blood. Therefore it is joyned to the heart by no ſimilitude nor familiarity. Furthermore, there is not a word in *Hippocrates* and *Galen* concerning the Unicornes horne, who notwithſtanding have in ſo many places commended Harts-horne. Therefore D. *Chapelaine*, the chiefe Phyſitian of King *Charles* the ninth, often uſed to ſay, that hee would very willingly take away that cuſtome of dipping a piece of Unicorns horn in the Kings cup, but that he knew that opinion to be ſo deeply ingrafted in the minds of men, that he feared, that it would ſcarce be impugned by reaſon. Beſides (he ſaid) if ſuch a ſuperſtitious medicine do no good, ſo certainely it doth no harme, unleſſe it be to their eſtates that buy it with gold, or elſe by accident, becauſe Princes, whilſt they rely more than is fitting upon the magnified vertues of this horne, neglect to arme themſelves againſt poyſons by other more convenient meanes, ſo that Death oft-times takes them at unawares. When as upon a time I enquired of *Lewes Duret* the Kings Phyſitian and Profeſſor (by reaſon of the great opinion that all learned men juſtly had of his learning and judgement) what he thought of this horne. He anſwered, that he attributed no faculties thereto: for the confirmation whereof he rendred the ſecond reaſon I have formerly given, but more largely and elegantly; neither feared he to affirme it aloud, & in plain words to his auditory of learned men, comming from all parts to hear him. But if at any time (orecome by the fault of the times & place) he preſcrib'd this horn, that he did it for no other entent, than to help faintings or ſownings that happen by the abundance of ſerous humors, floating in the orifice of the ventricle, which makes men ill diſpoſed, becauſe this mixed with other things endued with the like faculty, hath power to drinke up the wateriſh humidity by its earthy drineſſe. But ſome will reply, that neither the Lemnian, nor Armenian earth, have any juice in them, neither any ſmell, nor aëry ſpirit. It is granted, neither truely are ſuch things truely and properly called cordiall, but onely by event and accident, for that by the excellent aſtrictive faculty they have, and ſtopping the paſſages of the veſſels, they hinder the poyſon from entring into the heart. This is my opinion of Unicornes horne, which if any doe not approve of, hee ſhall doe mee a favour, if for the publike good, hee ſhall freely oppoſe his; but in the interim take this in good part which I have done.

In what caſes good.

The End of the One and Twentieth Booke.

OF THE PLAGUE.

THE TWENTIE SECOND BOOKE.

Chap. I.

The deſcription of the Plague.

THE Plague is a cruell and contagious diſeaſe, which every where, like a common diſeaſe, invading Man and Beaſt, kils very many; being attended, and as it were aſſociated with a continuall Feaver, Botches, Carbuncles, Spots, Nauſeouſneſſe, Vomitings, and other ſuch maligne accidents. This diſeaſe is not ſo pernitious or hurtfull, by any elementary qualitie, as from a certain poyſonous & venenate malignity, the force wherof exceeds the condition of common putrefaction. Yet I will not deny but that it is more hurtfull in certain bodies, times and regions, as alſo many other diſeaſes, of which *Hippocrates* makes mention. But from hence we can only collect, that the force and malignity of the plague, may be encreaſed, or diminiſhed, according to the condition of the Elementary qualities concurring with it, but not the whole nature and eſſence thereof to depend thereon.

What the plague is.

Sect. 3. aphor.

This peſtiferous poyſon principally aſſailes the Vitall ſpirit, the Store-houſe and originall whereof is the Heart, ſo that if the Vitall Spirit prove ſtronger, it drives it far from the Heart; but if weaker, it being overcome and weakened by the hoſtile aſſault, flies backe into the fortreſſe of the Heart, by the like contagion infecting the heart, and ſo the whole Body, being ſpred into it by the paſſages of the Arteries.

How it comes to kill.

Hence it is, peſtilent Feavers are ſometime ſimple and ſolitary, other-whiles aſſociated with a troope of other affects, as Botches, Carbuncles, Blaines, and Spots, of one or more colours.

It is probable ſuch affects have their originall from the expulſive Faculty, whether ſtrong or weake, provoked by the malignity of the raging matter: yet aſſuredly divers ſymptomes and changes ariſe, according to the conſtitution of the body of the Patient, and condition of the humor in which the virulency of the plague is chiefly inherent, and laſtly, in the nature of the efficient cauſe.

The originall Bubo's, Carbuncles, &c. in the plague.

I thought good, by this deſcription, to expreſſe the nature of the plague, at this my firſt entrance into this matter, for we can ſcarce comprehend it in a proper definition. For although the force thereof be definite and certaine in nature, yet it is not altogether certaine and manifeſt in mens minds, becauſe it never happens after one ſort: ſo that in ſo great variety, it is very difficult to ſet down any thing generall and certaine.

Chap. II.

Of the Divine cauſes of an extraordinary Plague.

Amos 3.
Acts 17

IT is a confirmed, conſtant, and received opinion in all Ages amongſt Chriſtians, that the plague and other diſeaſes, which violently aſſaile the life of man, are often ſent by the juſt anger of God puniſhing our offences. The Prophet *Amos* hath long ſince taught it, ſaying, *Shall there be affliction, ſhall there be evill in a City, and the Lord hath not done it?* On which truely we ought daily to meditate, and that for two cauſes: The firſt is, that wee alwaies beare this in minde, that wee enjoy health, live, move, and have our beings from God, and that it deſcends from that Father of Light: and for this cauſe we are alwaies bound to give him great and exceeding thanks. The other is, that knowing the calamities, by ſending whereof the Divine anger proceeds to revenge, wee may at length repent, and leaving the way of wickedneſſe, walke in the pathes of godlineſſe. For thus we ſhall learne to ſee in God, our ſelves, the Heaven and Earth, the true knowledge of the cauſes of the plague, and by a certaine Divine Philoſophy teach, God to bee the beginning and cauſe of the ſecond cauſes, which cannot well without the firſt cauſe goe about nor attempt, much leſſe performe any thing. For from hence they borrow their force, order, and conſtancy of order; ſo that they ſerve as Inſtruments for God, who rules and governes us, and the whole World, to performe all his workes, by that conſtant courſe of order, which hee hath appointed unchangeable from the beginning. Wherefore all the cauſe of a plague is not to bee attributed to theſe neere and inferiour cauſes or beginnings, as the Epicures and Lucianiſts commonly doe, who attributing too much, yea all things to nature, have left nothing to Gods providence. On the contrary, wee ought to thinke, and beleeve in all our things, That even as God by his omnipotent Power hath created all things of nothing, ſo he by his eternall Wiſedome preſerves and governes the ſame, leads and enclines them as he pleaſeth, yea verily at his pleaſure changeth their order, and the whole courſe of Nature.

The ſecond cauſes have their power from God as the firſt cauſe.

This cauſe of an extraordinary Plague, as wee confeſſe and acknowledge, ſo here we will not proſecute it any further, but thinke fit to leave it to Divines, becauſe it exceeds the bounds of Nature, in which I will now contain my ſelfe. Wherefore let us come to the naturall cauſes of the plague.

Chap. III.

Of the Naturall Cauſes of the Plague, and chiefly of the Seminary of the Plague by the corruption of the Aire.

The generall cauſes of the plague.

Lib. 6. de loc. affectis.

THE generall and naturall cauſes of the Plague are abſolutely two, that is, the infection of corrupt Aire, and a preparation and fitneſſe of corrupt humours to take that infection; for it is noted before out of the doctrine of *Galen*, that our humours may bee corrupted, and degenerate into ſuch an alienation which may equall the malignity of Poyſon.

How the ſeaſons of the yeere may be ſaid to want their ſeaſonableneſſe.

The Aire is corrupted, when the foure ſeaſons of the yeere have not their ſeaſonableneſſe, or degenerate from themſelves, either by alteration, or by alienation: as if the conſtitution of the whole yeere bee moiſt and rainy by reaſon of groſſe and blacke Cloudes; if the Winter bee gentle and warme without any Northerly wind, which is cold and dry, and by that meanes contrary to putrefaction; if the ſpring which ſhould be temperate, ſhall be faulty in any exceſſe of diſtemper; if the Autumn ſhall be ominous by Fires in the Aire, with ſtars ſhooting, and as it were falling down, or terrible comets, never ſeen without ſome diſaſter; if the ſummer be hot, cloudy and moiſt, and without winds, and the clouds flie from the South into the North. Theſe and ſuch like unnaturall conſtitutions of the ſeaſons of the yeere, were never better, or more excellently handled by any, than by *Hippocrates* in his bookes *Epidemion*. Therefore the Aire from hence drawes the ſeeds of corruption and the Peſtilence, which at the length, the like exceſſe of qualities being brought in, it ſends into the humours of our bodies, chiefly ſuch as are thinne and ſerous. Although the peſtilence doth not alwaies neceſſarily ariſe from hence, but ſome whiles ſome other kinde of cruell and infectious diſeaſe.

How the aire may be corrupted.

But neither is the aire onely corrupted by theſe ſuperiour cauſes, but alſo by putride and filthy ſtinking vapours ſpred abroad through the Aire encompaſſing us, from the Bodies and Carkaſſes of things not buried, gapings and hollowneſſes of the earth, or ſinkes and ſuch like places being opened: for the ſea often overflowing the land in ſome places, & leaving in the mud or hollowneſſes of the earth (cauſed by earth-quakes) the huge bodies of monſtrous Fiſhes, which it hides in its waters, hath given both the occaſion and matter of a plague. For thus in our time, a Whale caſt upon the Tuſcan ſhore, preſently cauſed a plague over all that country.

Lib. 8. hiſt. anim.

But as fiſhes infect and breed a plague in the aire, ſo the aire being corrupted often cauſeth a peſtilence in the ſea among fiſhes, eſpecially when they either ſwim on the top of the Water, or are infected by the peſtilent vapours of the Earth lying under them, & riſing into the aire through the body of the water, the latter whereof *Ariſtotle* ſaith, hapneth but ſeldome. But it often chanceth, that the plague raging in any countrey, many fiſhes are caſt upon all the coaſt, and may bee ſeene lying on great heaps. But ſulphureous vapours, or ſuch as partake of any other maligne quality, ſent forth from places under the ground, by gapings and gulfs opened by earthquakes, not only corrupt the aire, but alſo infect and taint the Seeds, Plants, and all the fruits which we eat, and ſo transferre the peſtilent corruption into us, and thoſe beaſts on which we feed, together with our nouriſhment. The truth whereof *Empedocles* made manifeſt, who by ſhutting up a great Gulf of the earth, opened in a valley between two mountaines, freed all Sicily from a plague cauſed from thence.

If winds riſing ſuddenly ſhall drive ſuch filthy exhalations from thoſe regions in which they were peſtiferous, into other places, they alſo will carrie the Plague with them thither.

If it be thus, ſome will ſay, it ſhould ſeeme that whereſoever ſtinking and putride exhalations ariſe, as about ſtanding Pooles, Sinkes and Shambles, there ſhould the Plague reigne, and ſtraight ſuffocate with its noyſome poyſon the people which worke in ſuch places: but experience findes this falſe.

Peſtiferous putrefaction is far different from ordinary putrefaction.

We doe anſwer, that the putrefaction of the plague is farre different, and of another kinde than this common, as that which partakes of a certaine ſecret malignity, and wholly contrary to our lives, and of which wee cannot eaſily give a plaine and manifeſt reaſon. Yet that vulgar putrefaction whereſoever it bee, doth eaſily and quickly entertaine and welcome the peſtiferous contagion, as often as, and whenſoever it comes, as joyned to it by a certaine familiarity, and at length, it ſelfe degenerating into a peſtiferous malignity, certainly no otherwiſe than thoſe diſeaſes which ariſe in the plague time, the putride diſeaſes in our bodies, which at the firſt wanted virulency and contagion, as Ulcers, putride Feavers, and other ſuch diſeaſes, raiſed by the peculiar default of the humours, eaſily degenerate into peſtilence, preſently receiving the tainture of the plague, to which they had before a certain preparation. Wherefore in time of the plague, I would adviſe all Men to ſhunne ſuch exceeding ſtinking places, as they would the plague it ſelfe: that there may be no preparation in our bodies, or humours to catch that infection (without which, as *Galen* teacheth, the Agent hath no power over the Subject, for otherwiſe in a plague time, the ſickeneſſe would equally ſeaze upon all) ſo that the impreſſion of the peſtiferous quality may preſently follow that diſpoſition.

In a peſtilent conſtitution of the aire, all diſeaſes become peſtilent.

Lib. 1. de differ. feb.

How the aire may be ſaid to putrefie.

But when we ſay the aire is peſtilent, we do not underſtand that ſincere, elementary, and ſimple as it is of its own nature, for ſuch is not ſubject to putrefaction, but that which is polluted with ill vapoures riſing from the earth, ſtanding waters, vaults, or ſea, and degenerates, and is changed from its native purity & ſimplicity. But certainly amongſt all the conſtitutions of the Aire, fit to receive a peſtilent corruption, there is none more fit than a hot, moyſt and ſtill ſeaſon: For the exceſſe of ſuch qualities eaſily cauſeth putrefaction. Wherefore the South wind reigning, which is hot and moyſt, and principally in places neare the Sea, there fleſh cannot long be kept, but it preſently is tainted and corrupted.

A Southerly conſtitution of the aire is the fuell of the Plague.

Further, wee muſt know, that the peſtilent malignity which riſeth from the carcaſſes or bodies of men, is more eaſily communicated to men; that which riſeth from oxen, to oxen; and that which comes from ſheepe, to ſheep, by a certaine ſympathy and familiarity of Nature: no otherwiſe than the Plague which ſhall ſeaze upon ſome one in a Family, doth preſently ſpread more quickly amongſt the reſt of that Family, by reaſon of the ſimilitude of temper, than amongſt others of another Family, diſagreeing in their whole temper. Therefore the Aire thus altered and eſtranged from its goodneſſe of nature, neceſſarily drawn in by inſpiration and tranſpiration, brings in the ſeeds of the Plague, and ſo conſequently the Plague it ſelfe, into bodyes prepared and made ready to receive it.

CHAP. IIII.

Of the preparation of humours to putrefaction, and admiſsion of peſtiferous impreſsions.

HAving ſhewed the cauſes from which the Aire doth putrefie, become corrupt, and is made partaker of a peſtilent and poyſonous conſtitution, wee muſt now declare what things may cauſe the humours to putrefie, and make them ſo apt to receive and retaine the peſtilent Aire and venenate quality.

Three cauſes of the putrefaction of humours.

Humours putrefie either from fulneſſe, which breeds obſtruction, or by diſtemperate exceſſe, or laſtly, by admixture of corrupt matter & evill juice, which ill feeding doth ſpecially cauſe to abound in the body: For the Plague often followes the drinking of dead and muſtie Wines, muddy and ſtanding waters, which receive the ſinks and filth of a City; and fruits and pulſe eaten without diſcretion in ſcarcity of other Corn, as Peaſe, Beans, Lentils, Vetches, Acorns, the roots of Fern, & Graſs made into Bread. For ſuch meats obſtruct, heap up ill humours in the body, & weaken the ſtrength of the faculties, from whence proceeds a putrefaction of humours, and in that putrefaction a preparation and diſpoſition to receive, conceive and bring forth the Seeds of the Plague: which the filthy ſcabs, maligne ſores, rebellious ulcers, and putrid feavers, being all forerunners of greater putrefaction and corruption, doe teſtifie. Vehement paſſions of the minde, as anger, ſorrow, griefe, vexation and feare, helpe forward this corruption of humours, all which hinder natures diligence and care of concoction: For as in the dog-dayes, the Lees of wine ſubſiding to the bottome, are by the ſtrength and efficacy of heat drawne up to the top, and mixed with the whole ſubſtance of the wine, as it were by a certaine ebullition, or working: So melancholy humours, being the Dregs or Lees of the bloud, ſtirred up by the paſſions of the mind, defile or taint all the bloud with their feculent impurity.

Paſſions of the mind helpe forward the putrefaction of the humours.

We found that ſome years agone by experience, at the battell of St. *Dennis*. For all wounds, by what weapon ſoever they were made, degenerated into great and filthy putrefactions & corruptions, with feavers of the like nature, & were commonly determined by death, what medicines, & how diligently ſoever they were applyed; which cauſed many to have a falſe ſuſpicion that the weapons on both ſides were poiſoned. But there were manifeſt ſignes of corruption and putrefaction in the bloud let the ſame day that any were hurt, and in the principall parts diſſected afterwards, that it was from no other cauſe, than an evill conſtitution of the Aire, and the minds of the Souldiers perverted by hate, anger and feare.

Chap. V.

What ſignes in the Aire and Earth prognoſticate a Plague.

WEE may know a Plague to bee at hand and hang over us, if at any time the Aire, and ſeaſons of the yeare ſwarve from their naturall conſtitution, after thoſe wayes I have mentioned before; if frequent and long continuing Meteors or ſulphureous Thunders infect the Aire; if fruits, ſeeds and pulſe be worme-eaten; If Birds forſake their neſts, egges or Young, without any manifeſt cauſe; if we perceive women commonly to abort, by continuall breathing in the vaporous Aire, being corrupted and hurtfull both to the Embrion and originall of life, and by which it being ſuffocated, is preſently caſt forth and expelled. Yet notwithſtanding, thoſe airy impreſſions doe not ſolely corrupt the Aire, but there may be alſo others rayſed by the Sunne from the filthy exhalations, and poyſonous vapours of the earth and waters, or of dead carcaſſes, which by their unnaturall mixture, eaſily corrupt the Aire, ſubject to alteration, as which is thin and moyſt, from whence divers Epidemiall diſeaſes, and ſuch as every-where ſeaze upon the common ſort, according to the ſeverall kinds of corruptions, ſuch as that famous Catarrhe with difficulty of breathing, which in the yeare 1510. went almoſt over the World, and raged over all the Cities and Townes of France, with great heavineſſe of the head (whereupon the French named it *Cuculla*) with a ſtraitneſſe of the heart and lungs, and a Cough, a continuall Feaver, and ſometimes raving.

Why Abortions are frequent in a peſtilent ſeaſon.

A Catarrhe with difficulty of breathing killing many.

This, although it ſeazed upon many more than it killed, yet becauſe they commonly dyed who were either let bloud, or purged, it ſhewed it ſelfe peſtilent by that violent and peculiar and unheard of kinde of malignity.

Such alſo was the Engliſh Sweating-ſickneſſe, or Sweating-feaver, which unuſuall, with a great deale of terrour invaded all the lower parts of Germany, and the Low Countryes from the yeare 1525. unto the yeare 1530. and that chiefly in Autumne.

The engliſh ſweating ſickneſſe.

As ſoone as this peſtilent diſeaſe entred into any City, ſuddenly two or three hundred fell ſick on one day, then it departing thence to ſome other place. The people ſtrucken with it languiſhing, fell down in a ſwoune, and lying in their beds, ſweat continually, having a feaver, a frequent, quick, and unequall pulſe; neither did they leave ſweating till the diſeaſe left them, which was in one or two dayes at the moſt: yet freed of it, they languiſhed long after, they all had a beating, or palpitation of the heart, which held ſome for two or three yeeres, and others all their life after.

At the firſt beginning it killed many, before the force of it was knowne: but afterwards very few, when it was found out by practice and uſe, that thoſe who furthered and continued their ſweats, and ſtrengthened themſelves with Cordials, were all reſtored. But at certaine times many other popular diſeaſes ſprung up, as putrid feavers, fluxes, bloudy-fluxes, catarrhes, coughes, phrenzies, ſquinances, pleuriſies, inflammations of the lungs, inflammations of the eyes, apoplexies, lithargies, ſmall pocks and meazels, ſcabs, carbuncles, and maligne puſtles. Wherefore the plague is not alwayes, nor every-where of one and the ſame kind, but of divers; which is the cauſe that divers names are impoſed upon it, according to the variety of the effects it brings, and ſymptomes which accompany it, and kinds of putrefaction, and hidden qualities of the Aire.

The Plague is not the definite name of one diſeaſe.

They affirme, when the Plague is at hand, that Muſhromes grow in greater abundance out of the earth, and upon the ſurface thereof many kindes of poyſonous *inſects* creepe in great numbers, as Spiders, Caterpillers, Butter-flyes, Graſſe-hoppers, Beetles, Hornets, Waſpes, Flyes, Scorpions, Snailes, Locuſts, Toads, Wormes, and ſuch things as are the off-ſpring of putrefaction. And alſo wilde beaſts tyred with the vaporous malignity of their Dennes and Caves in the earth, forſake them; and Moles, Toads, Vipers, Snakes, Lizzards, Aſpes and Crocodiles are ſeene to flee away,

What ſignes in the earth foretell a Plague.

away, and remove their habitations in great troopes. For theſe, as alſo ſome other creatures, have a manifeſt power by the gift of God, and the inſtinct of Nature, to preſage changes of weather, as raines, ſhowers, and faire weather; and ſeaſons of the yeare, as the Spring, Summer, Autumne, Winter, which they teſtifie by their ſinging, chirping, crying, flying, playing, and beating their wings, and ſuch like ſignes: ſo alſo they have a perception of a Plague at hand. And moreover, the carcaſſes of ſome of them which tooke leſſe heed of themſelves, ſuffocated by the peſtiferous poyſon of the ill Aire contained in the earth, may bee every where found, not onely in their dens, but alſo in the plaine fields.

How peſtilent vapours may kill plants and trees.

Theſe vapours corrupted not by a ſimple putrefaction, but an occult malignity, are drawne out of the bowels of the earth into the Aire, by the force of the Sun and Starres, and thence condenſed into clouds, which by their falling upon corne, trees and graſſe, infect and corrupt all things which the earth produceth, and alſo kils thoſe creatures which feed upon them; yet brute beaſts ſooner than men, as which ſtoope and hold their heads downe towards the ground (the maintainer and breeder of this poyſon) that they may get their food from thence. Therefore at ſuch times, skilfull husbandmen, taught by long experience, never drive their Cattell or Sheep to paſture, before that the Sun, by the force of his beames, hath waſted and diſſipated into Aire this peſtiferous dew hanging and abiding upon boughes and leaves of trees, herbs, corne and fruits.

But on the contrary, that peſtilence which proceeds from ſome maligne quality from above, by reaſon of evill and certaine conjunction of the Stars, is more hurtfull to men and birds, as thoſe who are neerer to heaven.

Chap. VI.

By uſing what cautions in Aire and Diet, one may prevent the Plague.

Change of places the ſureſt prevention of the Plague.

HAving declared the ſignes fore-ſhewing a Peſtilence: now wee muſt ſhew by what meanes we may ſhun the imminent danger thereof, and defend our ſelves from it. No prevention ſeemed more certaine to the Ancients, than moſt ſpeedily to remove into places farre diſtant from the infected place, and to be moſt ſlow in their returne thither againe. But thoſe, who by reaſon of their buſineſſe or employments, cannot change their habitation, muſt principally have care of two things: The firſt is, that they ſtrengthen their bodies, and the principall parts thereof againſt the daily imminent invaſions of the poyſon, or the peſtiferous and venenate Aire. The other, that they abate the force of it, that it may not imprint its virulency in the body; which may be done by correcting the exceſſe of the quality inclining towards it, by the oppoſition of its contrary. For if it bee hotter than is meet, it muſt bee tempered with cooling things; if too cold, with heating things: yet this will not ſuffice. For wee ought beſides, to amend & purge the corruptions of the venenate malignity diffuſed through it, by ſmels and perfumes reſiſting the poyſon thereof. The body will be ſtrengthened and more powerfully reſiſt the infected Aire, if it want excrementitious humours, which may be procured by purging and bleeding, and for the reſt a convenient diet appointed, as ſhunning much variety of meats, and hot and moyſt things, and all ſuch which are eaſily corrupted in the ſtomacke, and cauſe obſtructions, ſuch as thoſe things which be made by Comfit-makers; we muſt ſhun ſatiety and drunkenneſſe, for both of them weaken the powers, which are preſerved by the moderate uſe of meats of good juice.

Two things of chiefe account for prevention.

Diet for prevention of the Plague.

Let moderate exerciſes in a cleare Aire, and free from any venemous tainture, precede your meales.

Let the belly have due evacuation either by Nature or Art.

Let the heart, the ſeat of life, and the reſt of the bowels be ſtrengthened with Cordials and Antidotes applyed and taken (as wee ſhall hereafter ſhew) in the forme of epithemes, ointments, emplaſters, waters, pills, powders, tablets, opiates, fumigations, and ſuch like.

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Make choice of a pure Aire & free from all pollution, & far remote from ſtinking places, for ſuch is moſt fit to preſerve life, to recreate and repaire the ſpirits; whereas on the contrary, a cloudy or miſtie Aire, and ſuch as is infected with groſſe and ſtinking vapours, duls the ſpirits, dejects the appetite, makes the body faint and ill coloured, oppreſſeth the heart, and is the breeder of many diſeaſes.

Diſcommodities of a cloudy or foggy aire.

The Northern wind is healthfull, becauſe it is cold and dry. But on the contrary, the Southerne wind, becauſe it is hot and moyſt, weakens the body by ſloth or dulneſſe, opens the pores, and makes them pervious to the peſtiferous malignity. The Westerne winde is alſo unwholeſome, becauſe it comes neere to the nature of the Southerne: wherefore the windowes muſt bee ſhut up on that ſide of the houſe on which they blow, but opened on the North and Eaſt ſide, unleſs it happen the Plague come from thence.

Why the South wind is peſtilent.

Kindle a cleare fire in all the lodging Chambers of the houſe, and perfume the whole houſe with Aromatick things, as Frankinſence, Myrrhe, Benzoine, *Ladanum*, *Styrax*, Roſes, Myrtle-leaves, Lavender, Roſemary, Sage, Savory, wilde Time, Marjerome, Broome, Pine-apples, pieces of Firre, Juniper berries, Cloves, Perfumes: and let your cloathes be aired in the ſame.

The efficacy of fire againſt the Plague.

There be ſome, who think it a great preſervative againſt the peſtilent Aire, to keep a Goat in their houſes, becauſe the capacity of the houſes, filled with the ſtrong ſent which the Goat ſends forth, prohibits the entrance of the venemous Aire: which ſame reaſon hath place alſo in ſweet ſmels; and beſides, it argues, that ſuch as are hungry are apter to take the Plague, than thoſe who have eaten moderately: for the body is not onely ſtrengthened with meat, but all the paſſages thereof are filled by the vapours diffuſed from thence, by which otherwiſe the infected Aire would finde a more eaſie entrance to the heart.

Moderate repletion good for prevention.

Yet the common ſort of People yeeld another reaſon for the Goat, which is, that one ill ſent drives away another, as one wedge drives forth another; which calleth to my mind that which is recorded by *Alexander Benedictus*, that there was a Scythian Phyſician, which cauſed a Plague, ariſing from the infection of the Aire, to ceaſe, by cauſing all the dogs, cats, & ſuch like beaſts which were in the City, to be killed, and caſt their carcaſſes up & down the ſtreets, that ſo by the comming of this new putride vapour as a ſtranger, the former peſtiferous infection, as an old gueſt, was put out of its Lodging, & ſo the Plague ceaſed. For poyſons have not onely an antipathy with their Antidotes, but alſo with ſome other poyſons.

A ſtrange art to drive away the Plague.

The antipathy of poyſons with poyſons.

Whilſt the Plague is hot, it is not good to ſtirre out of doore before the riſing of the Sunne: wherefore wee muſt have patience, untill hee have cleanſed the Aire with the comfortable light of his Beames, and diſperſed all the foggy and nocturnall pollutions, which commonly hang in the Aire in dirty, and eſpecially in low places and Vallies.

All publike and great meetings and aſſemblies muſt be ſhunned.

If the Plague begin in Summer, and ſeeme principally to rage, being helped forward by the ſummers heat, it is the beſt to performe a journey begun, or undertaken for performance of neceſſary affaires, rather upon the night time, than on the day, becauſe the infection takes force, ſtrength and ſubtlety of ſubſtance, by which it may more eaſily permeate and enter in, by the heat of the Sun; but by night mens bodies are more ſtrong, and all things are more groſſe and denſe. But you muſt obſerve a cleane contrary courſe if the malignity ſeeme to borrow ſtrength, and celerity from coldneſſe. But you muſt alwayes eſchew the beames of the Moone, but eſpecially at the full: For then our bodies are more languid and weake, and fuller of excrementitious humours. Even as trees which for that cauſe muſt be cut down in their ſeaſon of the Moone, that is, in the decreaſe thereof.

Whether in the plague time one muſt travell by night or by day.

Why the Moon is to be ſhunned.

After a little gentle walking in your Chamber, you muſt preſently uſe ſome means that the principall parts may be ſtrengthened by ſuſcitating the heat & ſpirits, & that the paſſages to them may be filled, that ſo the way may bee ſhut up from the infection comming from without. Such as by the uſe of garlick have not their heads troubled, nor their inward parts inflamed, as Countrey people, and ſuch as are uſed to it, to ſuch there can can bee no more certaine preſervative and antidote againſt the peſtiferous

Garlick good againſt the Plague.

ſtiferous fogs or miſts, and the nocturnall obſcurity, than to take it in the morning with a draught of good wine; for it being abundantly diffuſed preſently over all the body, fils up the paſſages thereof, and ſtrengtheneth it in a moment.

What water to be made choice o' in the Plague time.

For water, if the Plague proceed from the tainture of the Aire, wee muſt wholly ſhun and avoyd raine-water, becauſe it cannot but bee infected by the contagion of the Aire. Wherefore the water of Springs, and of the deepeſt Wells are thought beſt. But if the malignity proceed from the vapours contained in the earth, you muſt make choice of Raine-water. Yet it is more ſafe to digeſt every ſort of water by boiling it, and to preferre that water before other, which is pure and cleare to the ſight, and without either taſt or ſmell, and which beſides ſuddenly takes the extremeſt mutation of heat and cold.

Chap. VII.

Of the Cordiall Remedies by which we may preſerve our bodies in feare of the Plague, and cure thoſe already infected therewith.

SUch as cannot eat without much labour, exerciſe and hunger, and who are no lovers of Break-faſts, having evacuated their excrements, before they goe from home muſt ſtrengthen the heart with ſome Antidote againſt the virulency of the infection. Amongſt which *Aqua Theriacalis*, or Treacle-water, two ounces, with the like quantity of Sacke, is much commended being drunke, and rubbing the noſtrils, mouth and eares with the ſame; for the Treacle-water ſtrengthens the heart, expels poyſon, and is not onely good for a preſervative, but alſo to cure the diſeaſe it ſelfe: For by ſweat it drives forth the poyſon contained within. It ſhould be made in *June*, at which time all ſimple medicines, by the vitall heat of the Sun, are in their greateſt efficacie.

Aqua theriacalis good againſt the Plague both inwardly taken & outwardly applyed.

The compoſition thereof.

The compoſition whereof is thus: Take the roots of Gentian, *Cyperus*, Tormentill, Diptam, or *Fraxinella*, Elecampaine, of each one ounce; the leaves of Muller, *Carduus Benedictus*, Divels-bit, Burnet, Scabious, Sheepes Sorrell, of each halfe a handfull; of the tops of Rue a little quantity; Mirtle Berries one ounce; of red Roſe leaves, the flowers of Bugloſſe, Borage, and St. Johns wurt, of each one ounce: let them be all cleanſed, dryed and macerated for the ſpace of twenty foure hours in one pound of white wine or Malmeſey, and of Roſe-water or Sorrell water; then let them bee put in a veſſell of glaſſe, and adde thereto of Treacle and Mithridate, of each foure ounces: then diſtill them in *Balneo Mariæ*, and let the diſtilled water bee received in a glaſſe Viall, and let there be added thereto of Saffron two drams, of bole Armenick, *Terra Sigillata*, yellow Sanders, ſhavings of Ivory and Harts-horne, of each halfe an ounce, then let the glaſſe be well ſtopped, and ſet in the Sun for the ſpace of eight or ten daies. Let the preſcribed quantity be taken every morning ſo oft as ſhall be needfull. It may bee given without hurt to ſucking children, and to women great with child. But that it may be the more pleaſant, it muſt bee ſtrained through an Hippocras bag, adding thereto ſome ſuger and cinamon.

Some thinke themſelves ſufficiently defended with a root of Elecampaine, Zedoarie, or Angelica, rowled in their mouth, or chawed betweene their teeth.

Others drinke every morning one dram of the root of Gentian bruſed, being macerated for the ſpace of one night in two ounces of white-wine.

Others take Worme-wood wine.

Others ſup up in a rere egge one dram of *Terra Sigillata*, or of Hartſ-horne, with a little Saffron, and drinke two ounces of wine after it.

There be ſome that doe infuſe bole Armenicke, the roots of Gentian, Tormentill, Diptam, the Berries of Juniper, Cloves, Mace, Cinamon, Saffron, and ſuch like, in *aqua vitæ* and ſtrong white wine, and ſo diſtill it in *Balneo Maria*.

A Cordiall water.

This Cordiall water that followeth is of great vertue. Take of the roots of the long and round *Ariſtolochia*, Tormentill, Diptam, of each three drams, of Zedoarie two drams, *Lignum Aloes*, yellow Saunders, of each one dram, of the leaves of Scordium,

dium, St. Johns wurt, Sorrell, Rue, Sage, of each halfe an ounce, of Bay and Juniper berries, of each three drams, Citron ſeeds one dram, Cloves, Mace, Nutmegs, of each two drams, of Maſtick, *Olibanum*, bole Armenick, *Terra Sigillata*, ſhavings of Hartſhorne and Ivory, of each one ounce, of Saffron on ſcruple, of the conſerves of Roſes, Bugloſſe flowers, water-lillies, and old Treacle, of each one ounce, of Camphire halfe a dram, of *aqua vitæ* halfe a pint, of white wine two pints and a half, make thereof a diſtillation in *Balneo Mariæ*. The uſe of this diſtilled water is even as Treacle water is.

A Cordiall electuary.

The Electuary following is very effectuall. Take of the beſt Treacle three ounces, Juniper berries and Carduus ſeeds of each one dram and a halfe, of bole Armenicke prepared halfe an ounce, of the powder of the Electuarie *de Gemmis* and *Diamargariton frigidum*, the powder of Hartſ-horne, and red Corall, of each one dram: mixe them with the ſyrupe of the rindes and juice of Pome-citrons as much as ſhall ſuffice, and make thereof a liquid Electuary in the forme of an Opiate, let them take every morning the quantity of a Filberd, drinking after it two drams of the water of Scabious, Cherryes, *Carduus Benedictus*, and of ſome ſuch like cordiall things, or of ſtrong wine.

An opiate.

The following Opiate is alſo very profitable, which alſo may be made into Tablets. Take of the roots of Angelica, Gentian, Zedoarie, Elecampaine, of each two drams; of Cytron and Sorrell ſeeds, of each halfe a dramme; of the dryed rindes of Cytrons, Cinnamon, Bay and Juniper berries, and Saffron, of each one ſcruple; of conſerve of Roſes and Bugloſſe, of each one ounce; and fine hard Sugar as much as is ſufficient: make thereof Tablets of the weight of halfe a dram, let him take one of them two houres before meate: or make thereof an Opiate with equall parts of conſerves of Bugloſſe and *Mel Anthoſatum*, and ſo adding all the reſt dry and in powder. Or take of the roots of Valerian, Tormentill, Diptam, of the leaves of Rue, of each halfe an ounce; of Saffron, Mace, Nutmegs, of each halfe a dram; of bole Armenick prepared halfe an ounce; of conſerve of Roſes and ſyrupe of Lemons as much as will bee ſufficient to make thereof an Opiate liquid enough. Or take of the roots of both the *Ariſtolochia's*, of Gentian, Tormentill, Diptam, of each one dram and an halfe; of Ginger three drams; of the leaves of Rue, Sage, Mints and Pennyroyall, of each two drams; of Bay and Juniper berries, Cytron ſeeds, of each foure ſcruples; of Mace, Nutmegs, Cloves, Cinnamon, of each two drams; of *Lignum aloes*, and yellow Saunders, of each one dram; of Male Frankincenſe, *i. Olibanum*, Maſticke, ſhavings of Hartſ-horne and Ivory, of each two ſcruples; of Saffron halfe a dram; of bole Armenicke, *Terra Sigillata*, red Corall, Pearle, of each one dram; of conſerves of Roſes, Bugloſſe flowers, water-lillyes and old Treacle, of each one ounce; of loafe ſugar one pound and a quarter: a little before the end of the making it up, adde two drams of *Confectio Alkermes*, and of Camphire diſſolved in Roſe-water one ſcruple: make thereof an Opiate according to Art, the doſe thereof is from halfe a dram to halfe a ſcruple.

Another.

Another.

Treacle and Mithridate faithfully compounded, excell all Cordiall medicines, adding for every halfe ounce of each of them, one ounce and a halfe of conſerves of Roſes, or of Bugloſſe, or of Violets, and three drams of bole Armenicke prepared: Of theſe being mixed with ſtirring, and incorporated together, make a conſerve: It muſt be taken in the morning the quantity of a Filberd: You muſt chooſe that Treacle that is not leſſe than foure years old, nor above twelve: that which is ſome-what new, is judged to be moſt meet for cholerick perſons, but that which is old for flegmatick and old men. For at the beginning the ſtrength of the *Opium* that enters into the compoſition thereof, remaines in its full vertue for a yeare: but afterwards the more years old it waxeth, the ſtrength thereof is more aboliſhed, ſo that at length the whole compoſition becommeth very hot.

The confection of *Alkermes* is very effectuall both for a preſervative againſt this diſeaſe, and alſo for the cure.

The quantity of a Filberd of Rubarbe, with one Clove chawed or rowled in the mouth, is ſuppoſed to repell the comming of the peſtilent Aire: as alſo this compoſition following.

Take

A confection to be taken in the morning againſt the peſtilent Aire.

Take of preſerved Citron and Orange pils, of each one dram; of conſerve of Roſes, and of the roots of Bugloſſe, of each three drammes; of Citron ſeeds halfe an ounce; of Anniſe ſeeds and Fennell ſeeds, of each one dram; of Angelica roots four ſcruples; ſugar of Roſes as much as ſufficeth: Make a Confection, and cover it with leaves of Gold, and take a little of it out of a ſpoone before you goe abroad every morning.

A March-pane.

Or take of Pine-Apple kernels, and Fiſtick nuts, infuſed for the ſpace of ſixe hours in the water of Scabious and Roſes, of each two ounces; of Almonds blanched in the fore-named waters halfe a pound: of preſerved Citron and Orange pils, of each one dram and a halfe: of Angelica roots foure ſcruples: make them according to art, unto the forme of March-pane, or of any other ſuch like confection: and hold a little piece thereof often in your mouth.

The Tablets following are moſt effectuall in ſuch a caſe. Take of the roots of Diptam, Tormentill, Valerian, Elecampaine, Eringoes, of each halfe a dram; of bole Armenick, *Terra Sigillata*, of each one ſcruple; of Camphire, Cinnamon, Sorrell ſeeds, and Zedoarie, of each one ſcruple; of the *Species* of the Electuarie *Diamargariton Frigidum*, two ſcruples; of conſerve of Roſes, Bugloſſe, preſerved Citron pils, Mithridate, Treacle, of each one dram; of fine ſugar diſſolved in Scabious and Carduus water, as much as ſhall ſuffice: Make thereof Tablets of the weight of a dram or half a dram: take them in the morning before you eat.

Pils of *Ruffus*.

The pils of *Ruffus* are accounted moſt effectuall preſervatives, ſo that *Ruffus* himſelfe ſaith, that he never knew any to be infected that uſed them: the compoſition of them is thus.

Take of the beſt Aloes halfe a dram; of Gumme *Ammoniacum* two drammes; of Myrrhe two drams and an halfe; of Maſticke two drams; of Saffron ſeven graines: Put them all together, and incorporate them with the juice of Citrons, or the ſyrupe of Lemons, and make thereof a maſſe, and let it bee kept in leather: Let the patient take the weight of half a dram every morning two or three hours before meat, & let him drinke the water of Sorrell after it, which through its tartneſſe, and the thinneſſe of its parts, doth infringe the force and power of the malignity or putrefaction: For experience hath taught us, that Sorrell being eaten or chawed in the mouth, doth make the pricking of Scorpions unhurtfull. And for thoſe ingredients which do enter into the compoſition of thoſe pils, Aloes doth cleanſe and purge, Myrrhe reſiſts putrefaction, Maſtick ſtrengthens, Saffron exhilerates and makes lively the ſpirits that governe the body, eſpecially the vitall and animall.

Other pils.

Thoſe pils that follow are alſo much approved. Take of Aloes one ounce; of Myrrhe halfe an ounce, of Saffron one ſcruple, of Agarick in Trochiſces, two drams, of Rubarbe in powder one dram, of Cinnamon two ſcruples, of Maſticke one dram and a half, of Citron ſeeds twelve grains: Powder them all as is requiſite; and make thereof a maſſe with the ſyrupe of Maiden-haire: Let it be uſed as afore-ſaid.

If the maſſe begin to waxe hard, the pils that muſt preſently be taken, muſt be mollified with the ſyrupe of Lemons.

Other pils.

Take of waſhed Aloes two ounces, of Saffron one dram, of Myrrhe half an ounce, of *Ammoniacum* diſſolved in white wine, one ounce, of hony of Roſes, Zedoarie, red Saunders, of each one dram, of bole Armenick prepared two drams, of red Coral half an ounce, of Camphire halfe a ſcruple: make thereof pils according to Art. But thoſe that are ſubject or apt to the hæmorrhoids ought not at all, or very ſeldome to uſe thoſe kindes of pils that doe receive much Aloes.

They ſay that King *Mithridates* affirmed by his own writing, that whoſoever took the quantity of an haſell Nut of the preſervative following, and dranke a little wine after it, ſhould be free from poyſon that day. Take two Wall-nuts, thoſe that be very dry, two figs, twenty leaves of Rue, and three grains of ſalt: beat them, and incorporate them together, and let them be uſed as is aforeſaid.

This remedy is alſo ſaid to be profitable for thoſe that are bitten or ſtung by ſome venemous beaſt, and for this onely, becauſe it hath Rue, in the compoſition thereof. But you muſt forbid women that are with child the uſe of this medicine, for Rue is hot and dry in the third degree, and therefore it is ſaid to purge the womb, and provoke the flowers, whereby the nouriſhment is drawne away from the child. Of ſuch variety of medicines, every one may make choice of that that is moſt agreeable to his taſte, and as much thereof as ſhall be ſufficient.

CHAP. VIII.

Of locall medicines to be applied outwardly.

Of what nature the medicines outwardly uſed ought to be.

THoſe medicines that have proper and excellent vertues againſt the peſtilence, are not to bee neglected to bee applied outwardly, or carried in the hand. And ſuch are all aromaticall, aſtringent, or ſpirituous things, which therfore are endued with vertue to repell the venemous and peſtiferous aire from comming and entring into the body, and to ſtrengthen the heart and the braine. Of this kind are Rue, Balm, Roſemary, *Scordium*, Sage, Worme-wood, Cloves, Nutmegs, Saffron, the roots of Angelica, and Lovage, and ſuch like, which muſt bee macerated one night in ſharpe Vinegar and *Aqua vitæ*, and then tyed in a knot as bigge as an egge: or rather let it be carried in a ſponge, made wet or ſoaked in the ſaid infuſion. For there is nothing that doth ſooner and better hold the ſpirituous vertue and ſtrength of aromaticke things, than a ſponge. Wherefore it is of principall uſe either to keep or hold ſweet things to the noſe, or to apply Epithemes and Fomentations to the heart.

Thoſe ſweet things ought to be hot or cold, as the ſeaſon of the yeere, and kinde of the peſtilence is. As for example, in the Summer you ought to infuſe and macerate Cinamon and Cloves beaten together, with a little Saffron in equall parts, of Vinegar of Roſes, and Roſe water, into which you muſt dippe a ſponge, which rowled in a faire linnen cloath, you may carry in your hand, and often ſmell to.

Take of Wormewood halfe a handfull, ten Cloves, of the roots of Gentian and Angelica, of each two drammes, of Vinegar and Roſe water, of each two ounces, of Treacle and Mithridate, of each one dramme, beat and mixe them all well together, and let a ſponge be dipped therein, and uſed as above-ſaid. They may alſo bee encloſed in boxes made of ſweet wood, as of Juniper, Cedar, or Cypreſſe, and ſo carried for the ſame purpoſe.

Pomanders.

But there is nothing more eaſie to be carried than Pomanders: the form of which is thus. Take of yellow Saunders, Mace, Citron pills, Roſe and Mirtle leaves, of each two drammes, of Benzoin, Ladanum, Storax, of each halfe a dramme, of Cinamon, and Saffron, of each two Scruples, of Camphire and Amber Greece, of each one ſcruple, of Muſke, three graines. Make thereof a Pomander, with Roſe water, with the infuſion of Tragacanth. Or take red Roſe leaves, the flowers of Water-lillies, and Violets, of each one ounce, of the three Saunders, Coriander ſeeds, Citron pills, of each halfe an ounce, of Camphire, one dramme, let them all bee made into pouder, and with Water of Roſes and Tragacanth make a pomander.

In the winter it is to be made thus: take of Storax, Benzoin, of each one dram and a half; of Musk, half a Scruple; of Cloves, Lavander, and *Cyperus*, of each two drams; of the root of Orris, *i.* Flower-de-Luce, and *Calamus aromaticus*, of each two drams and a half; of Amber Greece, three drams; of gum Tragacanth diſſolved in Roſe water & *Aqua vitæ*, as much as ſhall ſuffice: make thereof a Pomander.

Sweet pouders.

And for the ſame purpoſe you may alſo uſe to carry about with you ſweet pouders, made of Amber Greece, Storax, Orris, Nutmegs, Cinamon, Mace, Cloves, Saffron, Benzoine, Muske, Camphire, Roſes, Violets, *Juncus odoratus*, Marjoram, & ſuch like, of which being mixed together, Pouders may be compounded & made.

Take of the rootes of Orris two drams, of *Cyperus*, *Calamus Aromaticus*, red Roſes, of each halfe an ounce, of Cloves halfe a dramme, of Storax one dramme, of Muske eight graines: mixe them, and make a pouder for a bagge: or take the rootes of Orris two ounces, red Roſe leaves, white Saunders, Storax, of each one ounce, of *Cyperus* one dram, of *Calamus Aromaticus*, one ounce, of Marjoram, halfe an ounce, of Cloves, three drammes, of Lavander, halfe a dramme, of Coriander ſeedes two drammes, of good Muske, halfe a ſcruple, of Ladanum and Benzoin, of each a dram, of Nutmegs and Cinamon, of each two drammes: Make thereof a fine pouder, and ſew it in a bag.

Bagges.

It will be very convenient alſo to apply to the region of the heart, a bagge filled with yellow Saunders, Mace, Cloves, Cinnamon, Saffron, and Treacle ſhaken together, and incorporated, and ſprinckled over with ſtrong vinegar and Roſe water in Summer, and with ſtrong wine and Muskedine in the Winter.

Theſe ſweet Aromaticke things that are ſo full of ſpirits, ſmelling ſweetly and ſtrongly, have admirable vertues to ſtrengthen the principall parts of the body, and to ſtirre up the expulſive faculty to expell the poyſon.

Unſavory things to bee eſchewed.

Contrarie-wiſe, thoſe that are ſtinking and unſavory, procure a deſire to vomit, and diſſolution of the powers, by which it is manifeſt how fooliſh and abſurd their perſwaſion is, that counſaile ſuch as are in a peſtilent conſtitution of the aire, to receive and take in the ſtinking and unſavoury vapours of ſinkes and privies, and that eſpecially in the morning.

But it will not ſuffice to carry thoſe preſervatives alone, without the uſe of any other thing, but it will be alſo very profitable to waſh all the whole body in Vinegar of the decoction of Juniper & Bay berries, the roots of Gentian, Marigolds, S. Johns Wort, and ſuch like, with Treacle or Mithridate alſo diſſolved in it. For vinegar is an enemy to all poyſons in general, whether they be hot or cold: for it reſiſteth & hindereth putrefaction, becauſe it is cold & dry: therfore in this, inanimate bodies, as fleſh, Herbes, fruits, and many other ſuch like things, may be kept a long time without putrefaction. Neither is it to be feared, that it ſhould obſtruct the pores, by reaſon of its coldneſſe, if the body be bathed in it: for it is of ſubtle parts, and the ſpices boyled in it, have vertue to open.

Whoſoever accounteth it hurtfull to waſh his whole body therewith, let him waſh onely his arme-holes, the region of his heart, his temples, groines, parts of generation, as having great and marvellous ſympathy with the principall and noble parts.

An unguent.

If any miſlike bathing, let him annoint himſelf with the following unguent. Take oyle of Roſes, four ounces; oyle of Spike, two ounces; of the pouder of Cinamon and Cloves, of each one ounce and a halfe; of Benzoin, halfe an ounce; of Muske, ſixe graines; of Treacle, halfe a dramme; of Venice Turpentine, one dramme and a halfe; of Waxe, as much as ſhall ſuffice: make thereof a ſoft unguent.

You may alſo drop a few drops of oile of Maſtick, of Sage, or of Cloves, and ſuch like, into the eares, with a little Civet or Muske.

CHAP. IX.

Of other things to be obſerved for prevention, in feare of the Plague.

Why venery is to be ſhunned.

VENERY is chiefly to be eſchewed, for by it the powers are debilitated, the ſpirits diſſipated, and the breathing places of the body diminiſhed, and laſtly, all the ſtrength of nature weakened. A ſedentary life is to be ſhunned, as alſo exceſſe in diet, for hence proceeds obſtruction, the corruption of the juices, and preparation of the body to putrefaction and the peſtilence.

Running ulcers good in time of peſtilence.

Women muſt be very carefull that they have their courſes duely, for ſtopping beſides the cuſtome, they eaſily acquire corruption, and draw by contagion the reſt of the humours into their ſociety. Such as have fiſtulous, or otherwiſe old ulcers, muſt not heale them up in a peſtilent ſeaſon, for it is then more convenient rather to make new ones, and theſe in convenient and declining places; that as by theſe channels, the ſinke of the humors of the body may be emptied.

Places to be ſhunned in time of plague.

The Hæmorrhoids, bleedings, & other the like accuſtomed evacuations, muſt not be ſtopped, unleſſe they exceed meaſure. Moreover, they muſt at ſuch times take heed that they touch or handle not, any of theſe things wherein the ſeedes or fuell of the peſtilence may lye hid, ſuch as are, hempe, flaxe, quilts and coverings wherein ſuch as have had the plague, have laid; skins and all leathern things, hangings and cloaths. You muſt dwell farre from church-yards, eſpecially from thoſe wherein the corps of ſuch as have died of the plague, are not buried deep in the ground, as in the church of the *Innocents* in *Paris*, in which place by the ſame reaſon it ſundry times happens that the buried bodies are plucked up, rent and torne by dogs. Alſo let them dwell farre from places of execution, ſhambles of fleſh and fiſh, from tanne-houſes, diers, tallow-chandlers, cloth-dreſſers, farriers, skinners, and from the places wherein metals are caſt or wrought. The filth and dung, eſpecially of Swine, Privies, ſtanding and muddy waters, and laſtly all things of the like evill ſmell, muſt be farre remote from your habitation; the belly muſt not bee emptied into thoſe places, into which the excrements of ſuch as have the plague are caſt. The company of ſuch as uſually viſite thoſe ſicke of the plague, muſt be eſchewed, as of Phyſitians, Apothecaries, Surgeons, Nurſe-Keepers, Grave-makers and Bearers. For though they have not the plague, yet comming forth of a peſtilent place, they may carry with them lying hid in their garments, the ſeedes thereof. You may gather this by ſuch as have for a little while ſtayed in a perfumers ſhoppe, for the perfume diffuſed in the aire, beſtowes the ſmel upon the garments of ſuch perſons, ſo that gone from thence, ſuch as meet them, will judge them to carry perfumes with them. They ſhall alſo ſhunne long watchings, ſound ſleeping, all paſſions of the minde, eſpecially anger, hunger, thirſt, journying in the ſun, for that hath oft-times occaſioned a diary feaver, which hath not ſeldome beene ſeene to turne into a peſtilent one, for by dilating the pores of the skinne, they have given entrance to the peſtilent aire, which by that meanes hath eaſily taken hold of the humour diſpoſed to putrefaction.

What company to be avoided.

You muſt doe nothing in a peſtilent ſeaſon whereby you may grow too hot.

CHAP. X.

Of the office of Magiſtrates in the time of the Plague.

MAgiſtrates ought to have a ſpeciall care that no filth be heaped up, either in private or publike places: let all things bee kept neat in every houſe, and let all the ſtreets be kept cleane, the dung and filth bee carried forth of the city, as alſo the dead carcaſſes of killed dogs and cats, for becauſe they oft-times licke and devoure the excrements of ſuch as have the Sickneſſe, therefore they may by their familiar entry into ſound houſes, there propagate the plague. Wherfore they muſt either be driven forth of the city, or killed, and ſo be carryed forth and buried deepe in the ground. Wells, ſprings, and rivers themſelves, muſt bee freed and cleanſed from all impurity. Care muſt bee had that muſty corne, tainted fleſh, nor ſtinking fiſh be not ſet to ſale. Publike bathes and hot-houſes muſt bee prohibited, for that in theſe, mens bodies are weakened, and made more yeelding and pervious to the peſtiferous aire. They ſhall commit the cure of ſuch as have the plague, to learned, skilfull and honeſt Phyſitians, Apothecaries, and Surgeons.

Why dogs and cats muſt be killed in a plague time.

Why Bathes and hot-houſes are not then to be allowed.

Such as are knowne to have the plague, ſhall bee ſeparated from ſuch as are free therefrom, and bee ſent to ſuch fit places as ſhall bee provided for them; for this is better and more humanely done, than to ſhut up every man in his owne houſe. They ſhall provide and foreſee that the houſhold ſtuffe of ſuch as have the plague bee not ſet to ſale. They ſhall ſet ſignes and noted markes upon the houſes ſeazed upon by this diſeaſe, leſt they ſhould unawares run into danger. Wherefore to the ſame purpoſe they ſhall procure that the Surgeons & others that viſite the ſicke of the plague may be known by ſome conſpicuous marke, that ſuch as paſſe by them may be admoniſhed of the danger; they ſhall alſo take care that the bodies of the dead be buried as ſpeedily as may be. For they ſooner & more grievouſly putrefie in a ſhort time, than the bodies of others of what death ſoever they die. Wherfore, neither birds nor ravenous beaſts dare once touch their bodies, though unburied, for by taſting them they ſhould quickly come to their deaths. The keepers of the gates of the city ſhall be admoniſhed, that they take ſpeciall care that ſuch as are infected, or come from a viſited place, doe not enter into the city, for from one, the evill may come to ſpread it ſelfe further, for one ſparke may ſet a whole city on fire, and one ſcabby ſheepe infect a whole flock. And becauſe there is nothing which may more perfectly purge

Such as dye of the plague doe quickly putrefie.

the aire, and cleanſe it from all manner of noyſomneſſe and infection, than fire, they ſhall command that there be kindled, and perpetually kept burning fires, made with odoriferous and ſtrong ſmelling things, as Juniper, Turpentine, Broome, and the like.

Lib. 2. de occult nat. mirac.

In ſtead hereof *Levinus* tells that the ſouldiers of the Garriſon of *Torney* uſed in a Plague time to diſcharge their Cannons laded onely with Powder, turning their mouths upon the city, and that morning and evening, that by the vehemency of the moved aire, the peſtiferous fogges might bee chaſed away, and by the heate of the burned powder, the venenate and noyſome quality of the aire might bee amended. Laſtly, I judge it fit to admoniſh Magiſtrates that they have their eies and mindes attentive upon a murderous and impious kinde of bearers and nurſe-keepers, which allured with a deſire of gain (which whileſt the plague reignes, they get abundantly) anoint the walls, doores, threſholds, knockers of gates and lockes with the filth and ointments taken from ſuch as have the plague, that the plague within a while after ſeazing upon theſe alſo, the maſters of them flying away, and the family diſperſed, they may there reigne alone, and freely and without puniſhment carry thence what they pleaſe, oft-times ſtrangling ſuch as lye ready to dy, leſt recovering, they might be their accuſers. This I remember happened at *Lyons*, *Anno Dom.* 1565.

The villany of ſome baſe people.

CHAP. XI.

What caution muſt bee uſed in chuſing Phyſitians, Apothecaries and Surgeons, who may have care of ſuch as are taken with the Plague.

IT is the part of Magiſtrates in the ſo great neceſſity of the afflicted common-wealth, to appoint learned, skilfull, and honeſt Phyſitians, Surgeons, and Apothecaries, and ſuch as have more regard to the law of God than to gaine, to have the care & cure of ſuch as are viſited. But principally let them not take Surgeons and Apothecaries called by proclamation with ſound of trumpet, that if they will take this charge, they ſhall become free without examination or reward. But let them rather be allured by gifts and honeſt rewards, not only then when as neceſſity urgeth, but alſo after the plague is over. For ſuch ſervant Surgeons and Apothecaries as are called by proclamation, ſo to gaine freedome, are moſt commonly unskilfull and unexperienced Dunces, who, conſcious of their owne ignorance, and fearing to undergoe the examination of the Maſters of their Companies, refuſe no hazzard, however dangerous, with deſire to obtaine their freedome.

It is farre worſe and more dangerous to fall into the hands of ſuch, than into the hands of theeves and murderers, for theſe, by providence or ſtrength, wee may chance to eſcape; but wee ſeeke for and embrace the other, and having found them, lay our throats bare unto them, ſo by their unskilfulneſſe to be butchered. Certainly by the fault of the times, and the neglect of Magiſtrates, it is almoſt come to this paſſe, that if any honeſt and learned Phyſitians and Surgeons ſhall undertake this cure, they are commonly forced thereto by the Magiſtrate for feare of baniſhment or fining. Therefore becauſe they doe it againſt their wills, they ſhew themſelves leſſe vigilant, cheerefull and painefull about the ſicke. They come unwillingly and compelled hereto, becauſe by the memory of the forepaſt time, they ſufficiently know, how ſordide and baſely Magiſtrates, when the plague hath beene overpaſt, have bin in paying the promiſed reward to men of their condition, who have ſtoutly run into danger; for thence it happens that during the reſt of their lives they may ſit idle at home, for that they are infamous and feared by the people onely for this, that a while agone they viſited ſuch as had the plague. Therefore I would have Magiſtrates prudent, faithfull, and free in chooſing honeſt, learned and skilfull men, who may undergoe this ſo difficult and dangerous a charge.

CHAP. XII.

How ſuch as undertake the cure of the Plague ought to arme themſelves.

First they muſt thinke and hold for certaine, that they are not called to this office by men, but by God, ſo directing the counſels and actions of men as he thinketh fit. Therefore they ſhall confidently enter into the cure thereof, for that our lot, life and death are in the hands of the Lord: but notwithſtanding they ought not to neglect remedies, which are given to men for prevention, leſt by neglecting the gifts of God, they may ſeem to neglect him alſo that is the giver of ſo many good and excellent benefits. Therefore firſt let them by purging and bleeding evacuate the humours ſubject to putrefaction, and to conceive the ſeeds of the peſtilence. Let them make two fontanella's by application of Cauteries to bee as rivelets to evacuate the excrementitious humours which are daily by little and little heaped up in us; let one of them bee in the right arme a little below the muſcle *Epomis*, the other the ſpace of three fingers under the knee on the inſide of the left legge. This is found by experience a very certaine meanes of prevention. Let them waſh their whole bodies with the following lotion. ℞. *aquæ roſ. aceti roſati, aut ſambucini, vini albi aut malvatici, an.* ℔. vi. *rad. enulæ camp. angelicæ, gentian. biſtortæ, Zedoar. an.* ℥iii. *baccar. juniperi, & hederæ, an.* ℥ii. *ſalviæ, roriſmar. abſinth. rutæ, an.* m.i. *corticis citri,* ℥ß. *theriacæ & mithridat. an* ℥i. *conquaſſanda conquaſſent. bulliant lento igni, & ſerventur ad uſum ante commemoratum.* The Epithemes, unguents and bags formerly deſcribed ſhall be applyed to the region of the heart. I have read it noted by *John Baptiſt Theodoſius*, that amongſt other things, Arſenick may be profitably applyed to the region of the heart, that ſo it may by little and little accuſtome it ſelfe to poyſons, that afterwards it may bee leſſe harmed by their incurſion, firſt making their aſſault upon it.

Our lots are in the hands of the Lord.

Where to make iſſues in the time of the Plague.

Cap 8.

Epiſt. 2.

Let their garments be made of Chamelet, Dutch ſarge, Satin, Taffaty, or the like. Or elſe if they cannot of theſe, let them be of ſome other handſome ſtuffe, but not of cloth, frieze or the like, that may take the venenate Aire, and carry it with them to the infection of the ſound. They ſhall oft-times change their clothes, ſhirts and other linnen, and perfume them with aromaticke things; let them warily approach to the ſicke, more warily ſpeake unto him, with their faces looking away from him, rather than towards him, ſo that they may not receive the breath of his mouth, neither the vapour nor ſmell of any of his excrements.

What to weare.

How to viſite your patients.

When as I upon a time being called to viſit one that lay ſicke of the plague, came too neare and heedleſly to him, and preſently by ſudden caſting off the cloathes, laid him bare, that ſo I might the better view a *Bubo* that hee had in his right groine, and two Carbuncles that were on his belly, then preſently a thick, filthy and putride vapour ariſing from the broken abſceſſe of the Carbuncle, as out of a raked puddle, aſcended by my noſtrils to my braine, whereupon I fainted and fell down ſenſeleſſe upon the ground; raiſed up a little after, all things ſeemed to me to run round; and I was ready to fall againe, but that I ſtayed my ſelfe by taking hold of the bed poſte. But one thing comforted mee, that there appeared no ſignes that my heart was affected, either by paine or panting, or the ſtrong and contumacious failing of my powers. An argument that the animall ſpirits were only diſſipated by a venenate vapour, and that the ſubſtance of the heart was no way wronged, was a ſneeſing which tooke me ſo violently, that I ſneeſed ten times, and then fell a bleeding at the noſe; which excretion, I beleeve freed me from all the impreſſion of the malignity. Let others warned by this mine example, learne to be wiſer and more wary in this caſe, leſt they come to a worſe miſhap than befell mee.

A hiſtory.

CHAP. XIII.

Of the ſignes of ſuch as are infected with the Plague.

Whence certain ſignes of the Plague may be taken.

WEE muſt not ſtay ſo long before wee pronounce one to have the Plague, untill there be paine and a tumour under his arme-holes, or in his groine, or ſpots (vulgarly called Tokens) appeare over all the body, or carbuncles ariſe: for many dye through the venenate malignity, before theſe ſignes appeare. Wherefore the chiefeſt and trueſt ſignes of this diſeaſe are to be taken from the heart, being the manſion of life, which chiefly and firſt of all is wont to be aſſailed by the force of the poiſon. Therfore they that are infected with the Peſtilence, are vexed with often ſwounings and fainting; their pulſe is feebler and ſlower than others, but ſometimes more frequent, but that is ſpecially in the night ſeaſon; they feele prickings over all their body, as if it were the pricking of needles; but their noſtrils doe itch eſpecially by occaſion of the maligne vapours riſing upwards from the lower and inner, into the upper parts, their breaſt burneth, their heart beateth with paine under the left dug, difficulty of taking breath, Ptiſſicke, Cough, paine of the heart, and ſuch an elation or puffing up of the *Hypocondria* or ſides of the Belly, diſtended with the abundance of vapours raiſed by the force of the feaveriſh heat, that the Patient will in a manner ſeeme to have the Timpany. They are moleſted with a deſire to vomit, and oftentimes with much and painfull vomiting, wherein green and black matter is ſeen, & alwaies of divers colours, anſwering in proportion to the excrements of the lower parts, the ſtomack being drawn into a conſent with the heart, by reaſon of the vicinity and communion of the veſſels; oftentimes bloud alone, & that pure, is excluded & caſt up in vomiting; and it is not only caſt up by vomiting out of the ſtomack, but alſo very often out of the noſtrils, fundament, and in women out of the wombe; the inward parts are often burned, and the outward parts are ſtiffe with cold, the whole heat of the Patient being drawn violently inward, after the manner of a Cupping-glaſſe, by the ſtrong burning of the inner parts; then the eye-lids waxe blew, as it were through ſome contuſion, all the whole face hath a horrid aſpect, and as it were the colour of lead, the eies are burning red, & as it were, ſwoln or puffed up with Bloud, or any other humour, ſhed teares; and to conclude, the whole habit of the body is ſomewhat changed and turned yellow.

The cauſe of vomiting in ſuch as have the Plague.

Their looks are ſuddenly changed.

Many have a burning feaver, which doth ſhew it ſelfe by the Patients ulcerated jawes, unquenchable thirſt, dryneſs and blackneſs of the tongue, and it cauſeth ſuch a phrenſie by inflaming the braine, that the patients running naked out of their beds, ſeeke to throw themſelves out of windowes into the pits and rivers that are at hand. In ſome the joynts of the body are ſo weakned, that they cannot goe nor ſtand, from the beginning they are as it were buried in a long ſwoune and deepe ſleep, by reaſon that the feaver ſendeth up to the braine the groſſe vapours from the crude and cold humours, as it were from greene Wood newly kindled to make a fire.

Why ſome that are taken with the plague are ſleepy.

Such ſleeping doth hold him eſpecially while the matter of the ſore or Carbuncle is drawne together, and beginneth to come to ſuppuration. Oftentimes when they are awaked out of ſleepe, there doe ſpots and markes appeare diſperſed over the skin, with a ſtinking ſweat. But if thoſe vapours be ſharpe that are ſtirred up unto the head, in ſtead of ſleepe they cauſe great waking, and alwayes there is much diverſitie of accidents in the urine of thoſe that are infected with the Plague, by reaſon of the divers temperature and condition of bodies: neither is the urine at all times, and in all men of the ſame conſiſtence and colour: For ſometimes they are like unto the urine of thoſe that are ſound and in health, that is to ſay, laudable in colour and ſubſtance, becauſe that when the heart is affected by the venemous Aire, that entreth in unto it, the ſpirits are more greatly grieved and moleſted than the humours: but thoſe, *i.* the ſpirits, are infected and corrupted when theſe do begin to corrupt.

Why their urines are like thoſe that are ſound.

But Urines onely ſhew the diſpoſitions of the humours or parts in which they are made, collected together, and through which they paſſe.

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ked out of their beds,
rivers that are at hand.
not goe nor ſtand,from
deepe ſleep,by reaſon
rom the crude and cold
ake a fire.
f the ſore or Carbuncle
Oftentimes when they
diſperſed over the skin,
ſtirred up unto the head,
is much diverſitie of ac-
e,by reaſon of the divers
ine at all times, and in all
ey are like unto the urine
e in colour and ſubſtance,
ire, that entreth in unto it,
humours: but thoſe,i. the
corrupt.
urs or parts in which they
ſe.

This reaſon ſeemeth truer to me than theirs which ſay, that nature terrefied with the malignity of the poyſon avoyds contention, and doth not reſiſt or labour to digeſt the matter that cauſeth the diſeaſe.

Many have their appetites ſo overthrowne, that they can abſtaine from meat for the ſpace of three dayes together.

And to conclude, the variety of accidents is almoſt infinite, which appear & ſpring up in this kinde of diſeaſe, by reaſon of the diverſity of the poyſon, and condition of the bodies and grieved parts: but they doe not all appeare in each man, but ſome in one, and ſome in another.

CHAP. XIIII.

What ſignes in the Plague are mortall.

IT is a moſt deadly ſigne in the Peſtilence, to have a continuall and burning Feaver, to have the tongue dry, rough, and black, to breathe with difficulty, and to draw in a great quantity of breath, but breathe out little; to talke idely; to have phrenſie and madneſſe together, with unquenchable thirſt and great watching; to have Covulſions, the Hicket, heart-beating, and to ſwoune very often and vehemently; further, toſſing and turning in the bed, with a loathing of meats, and daily vomits of a greene, blacke and bloudy colour; and the face pale, blacke, of a horrid and cruell aſpect, bedewed with a cold ſweat, are very mortall ſignes.

There are ſome which at the very beginning have ulcerous and painefull wearineſſe, pricking under the skin, with great torment of paine; the eyes looke cruelly and ſtaringly, the voyce waxeth hoarſe, the tongue rough and ſtutting, and the underſtanding decaying, the Patient uttereth and talketh of frivolous things. Truely thoſe are very dangerouſly ſicke, no otherwiſe than thoſe whoſe urine is pale, black, and troubled like unto the urine of carriage beaſts, or Lye, with divers coloured clouds or contents, as blew, greene, black, fatty and oylie, as alſo reſembling in ſhew a Spiders Web, with a round body ſwimming on the top.

An ulcerous & painefull wearineſſe from the beginning ſheweth the Plague to be deadly.

If the fleſh of the carbuncle be dry and blacke, as it were ſeared with a hot iron, if the fleſh about it be blacke and blew, if the matter doe flow back, and turne in, if they have a laske with greatly ſtinking, liquid, thin, clammy, blacke, greene or blewiſh ordure; if they avoyd wormes by reaſon of the great corruption of the humours, and yet for all this the patient is never the better; if the eies waxe often dim, if the noſtrils bee contracted or drawne together, if they have a grievous crampe, the mouth bee drawne aſide, the muſcles of the face being drawn or contracted equally or unequally; if the nailes be blacke; if they be often troubled with the Hicket, or have a Convulſion and reſolution over all the body, then you may certainly prognoſticate that death is at hand, and you may uſe Cordiall medicines onely, but it is too late to purge or let bloud.

CHAP. XV.

Signes of the Plague comming by contagion of the Aire without any fault of the humours.

YOU ſhall underſtand that the Peſtilence proceeds from the corruption of the aire, if it be very contagious, and diſperſe it ſelfe into ſundry places in a moment. If it kill quickly and many, ſo that whileſt ſundry perſons goe about their uſuall buſineſſe, walke in the places of common reſort and through the ſtreets, they ſuddenly fall downe and dye, no ſigne of the diſeaſe or harme appearing, nor any paine oppreſſing them; for the malignity of the corrupt Aire is quick and very ſpeedy in infecting our ſpirits, overthrowing the ſtrength of the heart and killing the patient. The patients are not troubled with great agitation, becauſe the ſpirits diſſipated by the rapid malignity of the poyſon, cannot endure that labour; beſides they are taken with frequent ſwouning, few of them have Bubo's, few have Blains come forth; and by the ſame reaſon their urines are like to thoſe of ſound men.

Why they have no ſores.

CHAP. XVI.

Signes of the Plague drawne into the body by the fault and putrefaction of humours.

Formerly we have reckoned up the cauſes of the corruption of humours from plenitude, obſtruction, diſtemper, and the ill juice of meats. Now muſt wee deliver the ſignes of each corrupt humour which reignes in us, that it may be reduced to ſoundneſſe and perfection of nature by the oppoſition of its contrary, or elſe bee evacuated by phyſick. Therefore if the body be more yellow than uſuall, it is a ſigne of choler offending in quantity and quality. If more black, then of melancholy; if more pale, then of phlegme; if more red, with the veines ſwolne up and full, then of bloud. Alſo the colour of the riſing blaines, tumours and ſpots, expreſſe the colour of the predominant humour, as alſo the excrements caſt forth by vomit, ſtoole and otherwiſe; the heavineſſe and cheerfulneſſe of the affected body; the manner of the preſent feaver; the time of the year, age, region, diet. Such things as have a cutting, penetrating, attenuating, and cleanſing faculty, take away obſtruction. By meanes of obſtruction feavers oft-times accompany the Plague, and theſe not onely continuall, but alſo intermitting, like tertians or quartaines. Therefore that Plague that is fixed in the infection or corruption of a cholericke humour, ſhewes it ſelfe by the forementioned ſignes of predominating choler, to wit, the heate of the skin, blaines and excrements, as alſo in the quickneſſe of killing, and vehemency of the ſymptomes, bitterneſſe of the mouth, a painefull and continuall endeavour of going to ſtool, by reaſon of the acrimony of choler ſtimulating and raking the guts in the paſſage forth. That which reſides in the corrupt ſubſtance of groſſe humours, as of bloud, ſheweth it ſelfe by many and plentifull ſweats, by a ſcowring, by which are avoyded many and various humours; and ofttimes alſo bloudy matter that proceeds from corrupt phlegme, it invades with more ſound ſleep, & a cauſeleſs wearineſs of all the members; when they are awakened out of their ſleepe, they are not ſeldome troubled with a trembling over all their joints, the entrance and way of the ſpirits into the members being obſtructed by the groſſeneſſe of the humours. That which is ſeated in the corruption of a melancholy humour, is accompanied with heavineſſe and paine of the head, much penſiveneſſe, a deep and ſmall pulſe. But the moſt certaine ſigne of the Plague reſiding in the corruption of the humours, is to bee taken from the urine. For the ſignes of the vitiated humours cannot but ſhew themſelves in the urines: therefore troubled urines, and ſuch as are like thoſe of carriage beaſts, as alſo blacke and greene, give certaine notice thereof. But ſome are much troubled with thirſt, others not at all, becauſe choler or Phlegme ſometimes onely putrefie in the ſtomacke or orifice of the ventricle, ſometimes beſides they will weaken the governement of the naturall faculties of the part, as of the appetite. But if the feaver happen by the default and infection both of the Aire and Humours, then will there bee a great confuſion of the forementioned ſignes and ſymptomes.

Signes of choler.

When the urine is to be looked upon.

Why ſome are much troubled with thirſt, others not at all.

CHAP. XVII.

Of the Prognoſtication that is to be inſtituted in the Plague.

YOU may well fore-tell the future motions and events of diſeaſes, when you throughly know the nature of the diſeaſe, and accidents thereof, and the condition, function, and excellency of the body and grieved parts: Although that this may bee ſpoken in generall, That there is no certaine prediction in piſtilent diſeaſes, either to health or death, for they have very unconſtant motions, ſometimes ſwift and quick, ſometimes ſlow, and ſometimes choaking or ſuffocating in a moment, while one breathes in the venemous Aire, as hee is going about any of his neceſſary affaires, having puſtles riſing in the skin with ſharpe pain, and as though the whole body were pricked all over with needles, or the ſtings of Bees. Which I have ſeene with mine eyes in the Plague that was at Lyons when *Charles* the French King lay there. It many times commeth to paſs that the accidents that were very vehement and raging a little before, are ſuddenly aſſwaged, and the patients doe thinke themſelves better, or almoſt perfectly ſound. Which happened to *Mary* one of the Queene-Mother her Mayds, in that notable peſtilent conſtitution of the Aire, that yeare when *Charles* the French King lay at the Caſtle of Roſſilion: For when ſhe was infected, a great tumour or *Bubo* aroſe in her groine, and ſuddenly it went in againe, ſo that the third day of her ſickneſſe, ſhe ſaid ſhe was without any griefe or diſeaſe at all, but that ſhee was ſomewhat troubled with a difficulty of making water; and I think it was becauſe the bladder was enflamed by the refluxe of the matter; but ſhee was ſound in mind and body, and walked up and downe the Chamber on the ſame day that ſhe died. The ſtrangeneſſe of which thing made the King ſo fearfull, that he haſted to depart thence.

No certain prediction in the Plague.

A hiſtory.

Although this diſeaſe doth ſpare no man, of what age, temperature, complexion, diet and condition ſoever, yet it aſſaulteth young men that are cholericke and ſanguine, more often than old men that are cold and dry, in whom the moyſture that is the nouriſher of putrefaction by reaſon of their age is conſumed, and the wayes, paſſages and pores of the skin, whereby the venemous Aire ſhould enter and pierce in, are more ſtrait and narrow. And moreover, becauſe old men doe alwayes ſtay at home, but young men for their neceſſary buſineſſe, and alſo for their delight and pleaſure, are alwayes abroad in the day time, in the Aire, where-hence the pollution of the peſtilence commeth more often.

Why young men ſooner take the Plague than old.

That peſtilence that comes by the corruption of the humours, is not ſo contagious as that which commeth by the default of the Aire. But thoſe that are phlegmatick and melancholy, are moſt commonly grieved with that kinde of peſtilence, becauſe in them the humours are more clammy and groſſe, and their bodies more cold and leſſe perſpirable, for which cauſes the humours ſooner and more ſpeedily putrefie.

What Plague moſt contagious.

Men that are of an ill juice are alſo moſt apt to this kinde of peſtilence, for in the naughty quality of the juice there is a great preparation of the humours unto putrefaction: You may know it by this, that when the peſtilence raigneth, there are no other diſeaſes among the common people, which have their original of any ill juice, but they all degenerate into the Plague. Therefore when they begin to appeare and wander up and downe, it is a token that the peſtilence will ſhortly ceaſe, or is almoſt at an end.

But here alſo I would have you to underſtand thoſe to bee of an ill juice, which have no pores in their skin, by which, as it were by rivers, the evill juice which is contrary to nature, may be evacuated and purged. And I have noted and obſerved, that thoſe are leſſe in danger of the Peſtilence which have cancerous ulcers and ſtinking ſores in their noſes, and ſuch as infected with the French Pocks, have by reaſon thereof, tumours and rotten ulcers, or have the Kings evill running upon them, the Leproſie or the Scab: and to conclude, all thoſe that have fiſtulous and running ulcers in their bodies.

Who leaſt ſubject to take the Plague.

I thinke thoſe that have quartaine Feavers are the better priviledged for the ſame, becauſe that by the Fit cauſing ſweat, that commeth every fourth day, they avoyd much of the evill juice that was engendered.

This is more like to bee true, than to thinke that the poyſon that commeth from without, may be driven away by that which lurketh within.

Who ſubject thereto.

Contrariwiſe, women that are great with child, as I have noted, becauſe they have much ill juice, being prohibited from their accuſtomed evacuations, are very apt to take this diſeaſe, and do ſeldome recover after they are infected.

Signes that the diſeaſe is incurable.

Blacke or blew impoſtumes, and ſpots and puſtles of the ſame colour, diſperſed over the skin, argue that the diſeaſe is altogether incurable and mortall.

A good ſigne.

When the ſwelling or ſore goeth or commeth before the feaver, it is a good ſigne, for it declareth that the malignity is very weak and feeble, and that nature hath overcome it, which of it ſelfe is able to drive ſo great portion thereof from the inner parts. But if the ſore or tumour come after the feaver, it is a mortall and deadly ſigne, for it is certaine that it commeth of the venemous matter not tranſlated, but diſperſed, not by the victory of nature, but through the multitude of the matter, with the weight whereof nature is overcome.

A deadly ſigne.

When the Moone decreaſeth, thoſe that are infected with the Peſtilence are in great doubt and danger of death, becauſe then the humours that were collected and gathered together before the full of the Moone, through delay and abundance, do ſwell the more, and the faculties by which the body is governed, become more weake and feeble, becauſe of the imbecility of the native heate, which before was nouriſhed and augmented by the light, and ſo conſequently by the heat of the full Moon: For as it is noted by *Ariſtotle*, the wainings of the Moone are more cold and weak: and thence it is that women have their menſtruall fluxes chiefly or moſt commonly at that time.

In what aire moſt contagious.

In a groſſe and cloudy Aire the peſtilent infection is leſs vehement and contagious than in a thin and ſubtle Aire; whether that thinneſſe of the Aire proceed from the heat of the Sun, or from the North wind & cold. Therfore at *Paris*, where naturally, and alſo through the abundance of filth that is about the Citie, the Aire is darke and groſſe, the peſtilent infection is leſſe fierce and contagious than it is in *Province*, for the ſubtlety of the Aire ſtimulates or helps forward the Plague.

But this diſeaſe is mortall and pernicious whereſoever it bee, becauſe it ſuddenly aſſaulteth the heart, which is the Manſion, or as it were the fortreſſe or caſtle of life: but commonly not before the ſignes and tokens of it appeare on the body: and yet you ſhall ſcarce find any man that thinketh of calling the Phyſitian to helpe to preſerve him from ſo great danger before the ſignes thereof be evident to bee ſeene and felt: but then the heart is aſſaulted. And when the heart is ſo aſſaulted, what hope of life is there, or health to be looked for? Therefore becauſe medicines come ofttimes too late, and this malady is as it were a ſudden and winged meſſenger of our death, it commeth to paſſe that ſo many dye thereof. And moreover, becauſe at the firſt ſuſpicion of this ſo dire and cruell a diſeaſe, the imagination and minde (whoſe force in the diverſly ſtirring up of the humours is great and almoſt incredible) is ſo troubled with feare of imminent death, and diſpaire of health, that together with the perturbed humours, all the ſtrength and power of nature falleth and ſinketh downe.

What effects feare and confidence produce in the Plague.

This you may perceive and know, by reaſon that the keepers of ſuch as are ſicke, and the bearers which are not fearefull, but very confident, although they doe all the baſeſt offices which may be for the ſick, are commonly not infected, and ſeldome dye thereof if infected.

CHAP.

Chap. XVIII.

How a peſtilent feaver comes to be bred in us.

THe Plague oft-times findeth fuel in our bodies, and oft-times allurements, to wit, the putrefaction of humours, or aptneſſe to putrefie: but it never thence hath its firſt originall, for that comes alwaies from the defiled aire; therefore a peſtilent feaver is thus bred in us: The peſtilent Aire drawne by inſpiration into the lungs, and by tranſpiration into the utmoſt mouthes of the veines and arteries ſpread over the skin, the bloud or elſe the humours already putrefying or apt to putrefie therein, are infected and turned into a certaine kind of malignity reſembling the nature of the agent. Theſe humours, like unquencht lime when it is firſt ſprinkled with water, ſend forth a putride vapour, which carryed to the principall parts and heart eſpecially, infecteth the ſpirituous bloud boyling in the ventricles thereof, and therewith alſo the vitall ſpirits; and hence proceeds a certaine feaveriſh heat. This heat diffuſed over the body by the arteries, together with a maligne quality, taints all, even the ſolid parts of the bones with the peſtiferous venome, and beſides, cauſeth divers ſymptomes, according to the nature thereof, and the condition of the body and humours wherein it is. Then is the conflict of the malignity aſſailing, & nature defending, manifeſt, in which if nature prevaile, it, uſing the help of the expulſive faculty, will ſend & drive it far from the noble parts, either by ſweats, vomits, bleeding, evacuation by ſtoole or urine, buboes, carbuncles, puſtles, ſpots, and other ſuch kinds of breakings out over the skin. But on the contrary, if the malignity prevaile, and nature be too weake, and yeeld, and that firſt he be troubled with often panting or palpitation of the heart, then preſently after with frequent faintings, the patient then at length will dye. For this is a great ſigne of the Plague or a peſtilent Feaver, if preſently at the firſt, with no labour, nor any evacuation worth the ſpeaking of, their ſtrength faile them, and they become exceeding faint. You may find the other ſignes mentioned in our preceding diſcourſe.

The originall of the Plague alwaies from the Aire.

Signes that nature is orecome.

Chap. XIX.

Into what place the Patient ought to betake himſelfe ſo ſoone as he finds himſelfe infected.

WEE have ſaid that the perpetuall and firſt originall of the peſtilence commeth of the Aire, therefore ſo ſoone as one is blaſted with the peſtiferous Aire, after he hath taken ſome preſervative againſt the malignity thereof, hee muſt withdraw himſelfe into ſome wholeſome Aire, that is, cleane and pure from any venemous infection or contagion, for there is great hope of health by the alteration of the Aire; for we doe moſt frequently and abundantly draw in the Aire of all things, ſo that we cannot want it for a minute of time: therefore of the Aire that is drawne in, dependeth the correction, amendment, or increaſe of the Poyſon or malignity that is received, as the Aire is pure, ſincere or corrupted.

Change of the Aire conduceth to the cure of the Plague.

There bee ſome that doe think it good to ſhut the patient in a cloſe Chamber, ſhutting the windowes to prohibite the entrance of the Aire as much as they are able: But I thinke it more convenient that thoſe windowes ſhould bee open from whence that wind bloweth that is directly contrary unto that which brought in the venemous Aire: For although there be no other cauſe, yet if the Aire bee not moved, or agitated, but ſhut up in a cloſe place, it will ſoone bee corrupted. Therefore in a cloſe and quiet place that is not ſubject to the entrance of the Aire, I would wiſh the patient to make wind, or to procure Aire with a thick and great cloth dipped or macerated in water and vinegar mixed together, and tyed to a long Staffe, that by toſſing it up and downe the cloſe chamber, the wind or aire thereof may coole and re-

Aire pent up is apt to putrefie.

create the patient. The patient muſt every day bee carried into [illegible] chamber, a the beds and the linnen cloaths muſt be changed: there muſt alwaies be a cleare a bright fire in the patients chamber, and eſpecially in the night, whereby the aire ma be made more pure, cleane, and voyd of nightly vapours, and of the filthy and peſti lent breath proceeding from the patient, or his excrements. In the meane time, le (if it be in hot weather) the patient ſhould be weakened or made more faint by rea ſon that the heat of the fire doth diſperſe and waſt his ſpirits, the Floor or ground o the chamber muſt bee ſprinkled or watered with vinegar and water, or ſtrowed wit the branches of vines made moiſt in cold water, with the leaves and flowers of Wa ter-lillyes, or Poplar, or ſuch like. In the fervent heat of ſummer hee muſt abſtaine from Fumigations that doe ſmell too ſtrongly, becauſe that by aſſaulting the head, they encreaſe the paine.

If the patient could goe to that coſt, it weregood to hang all the chamber where he lyeth, and alſo the Bed, with thicke or courſe linnen cloaths moiſtened in vinegar and water of Roſes. Thoſe linnen cloaths ought not to be very white, but ſomewhat browne, becauſe much and great whiteneſſe doth diſperſe the ſight, and by waſting the ſpirits, doth encreaſe the paine of the head: for which cauſe alſo the Chamber ought not to bee very lightſome.

Contrariwiſe, on the night ſeaſon there ought to bee fires and perfumes made, which by their moderate light, may moderately call forth the ſpirits.

The materials for ſweet fires.

Sweet fires may be made of little pieces of the wood of Juniper, Broom, Aſh, Tamarisk, of the rinde of Oranges, Lemmons, Cloves, Benzoin, gum Arabick, Orris roots, Mirrhe, groſſely beaten together, and layd on the burning coals put into a chafing diſh. Truely the breath or ſmoake of the wood or berries of Juniper, is thought to drive ſerpents a great way from the place where it is burnt. The vertue of the Aſh-tree againſt venome is ſo great, as *Pliny* teſtifieth, that a ſerpent will not come under the ſhadow thereof, no not in the morning nor evening, when the ſhaddow of any thing is moſt great and long, but ſhe will runne from it. I my ſelfe have proved that if a circle or compaſſe bee made with the boughes of an Aſh-tree, and a fire made in the midſt thereof, and a ſerpent put within the compaſſe of the boughs, that the ſerpent will rather runne into the fire than through the Aſh boughes.

Lib. 16. cap 13.

There is alſo another meanes to correct the Aire. You may ſprinkle vinegar of the decoction of Rue, Sage, Roſemary, Bay berries, Juniper berries, *Cyperus* nuts, & ſuch like, on ſtones or bricks made red hot, and put in a pot or pan, that all the whole chamber where the patient lyeth may be perfumed with the vapour thereof.

Perfumes.

Alſo fumigations may bee made of ſome matter that is more groſſe and clammy, that by the force of the fire the fume may continue the longer, as of *Ladanum*, Myrrhe, Maſticke, Roſine, Turpentine, Storax, *Olibanum*, Benzoin, Bay berries, Juniper berries, Cloves, Sage, Roſemary, and Marjoram, ſtamped together, and ſuch like.

Sweet candles.

Thoſe that are rich and wealthy may have Candles and Fumes made of waxe, or Tallow mixed with ſome ſweet things.

A ſponge macerated in Vinegar of Roſes, and Water of the ſame, and a little of the decoction of Cloves, and of Camphire added thereto, ought alwaies to be ready at the patients hand, that by often ſmelling unto it, the animall ſpirits may be recreated and ſtrengthened.

A ſweet water to ſmell to.

The water following is very effectuall for this matter. Take of Orris, foure ounces; of Zedoarie, Spikenard, of each ſixe drammes; of Storax, Benzoin, Cinamon, Nutmegs, Cloves, of each one ounce and a halfe; of old Treacle, halfe an ounce: bruiſe them into a groſſe pouder, and macerate them for the ſpace of twelve houres in foure pound of white and ſtrong wine, then diſtill them in a Limbeck of glaſſe on hot aſhes, and in the diſtilled liquor wet a ſponge, and then let it be tyed in a linnen cloath, or cloſed in a boxe, and ſo often put unto the noſtrills. Or take of the vinegar and water of roſes, of each foure ounces; of Camphire, ſixe graines; of Treacle, half a dram: let them be diſſolved together, and put into a viall of glaſſe, which the patient may often put unto his noſe.

A *Nodula* to ſmell to.

This *Nodula* following is more meet for this matter. Take of Roſe leaves, two pugils; of Orris halfe an ounce; of *Calamus Aromaticus*, Cynamon, Cloves, of each two drammes; of Storax and Benzoin, of each one dramme and a halfe; of *Cyperus*, halfe a dramme: beat them into a groſſe pouder, make thereof a *Nodula* betweene two pieces of Cambricke or Lawne of the bigneſſe of an hand-ball, then let it bee moiſtened in eight ounces of Roſe water, and two ounces of Roſe vinegar, and let the patient ſmell unto it often. Theſe things muſt be varied according to the time: For in the Summer you muſt uſe neither Muske nor Civet, nor ſuch like hot things: and moreover women that are ſubject to fits of the Mother, and thoſe that have Feavers or the head-ach, ought not to uſe thoſe things that are ſo ſtrong ſmelling & hot, but you muſt make choice of things more gentle: Therefore things that are made with a little Camphire and Cloves bruiſed and macerated together in Roſe water & vinegar of Roſes, ſhall be ſufficient.

Chap. XX.

What Diet ought to be obſerved, and firſt of the choice of Meat.

The order of diet in a peſtilent diſeaſe ought to bee cooling and drying; not ſlender, but ſomewhat full. Becauſe by this kinde of diſeaſe there commeth waſting of the ſpirits, and exolution of the faculties, which inferreth often ſwouning, therefore that loſſe muſt be repaired as ſoone as may be with more quantity of meates that are of eaſie concoction and digeſtion. Therfore I never ſaw any being infected with the peſtilence that kept a ſlender diet, that recovered his health, but died; and few that had a good ſtomacke, and fed well, dyed.

Why ſuch as have the plague may feed more fully.

Sweet, groſſe, moiſt and clammy meates, and thoſe which are altogether, and exquiſitely of ſubtle parts, are to be avoyded; for the ſweet do eaſily take fire, and are ſoone enflamed; the moiſt will putrefie; the groſſe and clammy obſtruct, and therefore engender putrefaction; thoſe meats that are of ſubtle parts, over-much attenuate the humours, and enflame them, and doe ſtirre up hot and ſharp vapours into the braine, whereof commeth a Feaver. Therefore wee muſt eſchew Garlike, Onions, Muſtard, ſalted and ſpiced Meats, and all kind of Pulſe muſt alſo be avoided, becauſe they engender groſſe winds, which are the authors of obſtruction: but the decoction of them is not alwayes to be refuſed, becauſe it is a provoker of urine. Therefore let this bee their order of diet: let their bread bee of Wheat or Barly, well wrought, well leavened and ſalted, neither too new nor too ſtale: let them bee fed with ſuch meat as may be eaſily concocted and digeſted, & may engender much laudable juice, and very little excrementall, as are the fleſh of Wether-lambs, Kids, Leverets, Pullets, Partridges, Pigeons, Thruſhes, Larkes, Quailes, Blacke-Birds, Turtle-Doves, Moor-Hennes, Pheaſants, and ſuch like, avoyding water-Fowles. Let the Fleſh be moiſtened in Ver-juice of unripe Grapes, Vinegar, or the juice of Lemmons, Oranges, Cytrons, tart Pomegranates, Barberries, Gooſe-berries, or red Currance, or of garden, & wild ſorrell: for all theſe ſowre things are very wholeſome in this kinde of diſeaſe, for they doe ſtirre up the appetite, reſiſt the venemous quality and putrefaction of the humours, reſtraine the heat of the Feaver, and prohibit the corruption of the meates in the ſtomacke. Although that thoſe that have a more weake ſtomacke, and are endued with a more exact ſenſe, and are ſubject to the Cough and diſeaſes of the Lungs, muſt not uſe theſe, unleſſe they be mixed with Sugar and Cynamon.

Pulſe muſt be ſhunned.

The manner of diet.

If the patient at any time be fed with ſodden meats, let the brothes be made with Lettuce, Purſlaine, Succory, Borage, Sorrell, Hops, Bugloſſe, Creſſes, Burnet, Marigolds, Chervill, the cooling Seeds, french Barly and Oatmeale, with a little Saffron, for Saffron doth engender many ſpirits, and reſiſteth poyſon. To theſe opening roots may be added for to avoid obſtruction; yet much broath muſt be refuſed by reaſon of moiſture. The fruit of Capers eaten in the beginning of the Meale provoke the appetite, and prohibit obſtructions, but they ought not to bee ſeaſoned with over-much Oyle and Salt, they may alſo with good ſucceſſe bee put into Broaths.

Fiſhes are altogether to be avoyded, becauſe they ſoon corrupt in the Stomack: but if the patient be delighted with them, thoſe that live in ſtony places muſt be choſen, that is to ſay, thoſe that live in pure and ſandy water, & about rocks and ſtones, as are Trouts, Pikes, Pearches, Gudgions, and Craviſes boyled in milk, Wilks, and ſuch like. And concerning Sea-fiſh, he may be fed with Giltheads, Gurnarts, with all the kinds of Cod-fiſh, Whitings not ſeaſoned with ſalt, and Turbuts.

Egges potched and eaten with the juice of Sorrell, are very good. Likewiſe Barly water ſeaſoned with the graines of a tart Pomegranate, and if the Feaver be vehement, with the ſeeds of white Poppy. Such Barly water is eaſie to be concocted and digeſted, it cleanſeth greatly, and moiſtens and mollifieth the belly. But in ſome it procures an appetite to vomit, and paine of the head, and thoſe muſt abſtaine from it. But inſtead of barly water they may uſe pap, and bread crummed in the decoction of a Capon.

For the ſecond courſe.

For the ſecond courſe, let him have raiſons of the Sunne newly ſodden in Roſe water with Sugar, ſoure Damaske Prunes, tart Cherries, Pippins, and Katharine Peares.

In the end of the meale.

And in the latter end of the Meale, Quinces roaſted in the Embers, Marmelate of Quinces, and conſerves of Bugloſſe or of Roſes, and ſuch like, may be taken: or elſe this pouder following.

Take of Coriander ſeeds prepared, two drams; of Pearle, Roſe leaves, ſhavings of Hartſ-horne and Ivory, of each halfe a dram; of Amber two ſcruples; of Cinamon one ſcruple; of Unicornes horne, and the bone in a Stagges heart, of each half a ſcruple; of Sugar of Roſes, foure ounces: Make thereof a pouder, and uſe it after meats.

If the patient be ſomewhat weake, he muſt be fed with Gelly made of the fleſh of a Capon, and Veale ſodden together in the water of Sorrell, *Carduus benedictus*, with a little quantity of Roſe vinegar, Cynamon, Sugar, and other ſuch like, as the preſent neceſſity ſhall ſeeme to require.

In the night ſeaſon for all events and miſchances, the patient muſt have ready prepared broath of meats of good digeſtion, with a little of the juice of Citrons or Pomegranates.

A reſtaurative drinke.

This reſtaurative that followeth may ſerve for all. Take of the conſerve of Bugloſſe, Borage, Violets, Water-lillies, and Succory, of each two ounces; of the pouder of the Electuary *Diamargaritum Frigidum*, of the Trochiſces of Camphire, of each three drams: of Citron ſeeds, *Carduus* ſeeds, Sorrell ſeeds, the rootes of *Diptamnus*, Tormentill, of each two drammes; of the broath of a young Capon, made with Lettuce, Purſlaine, Bugloſſe and Borage boiled in it, ſixe pints,; put them in a Lembecke of glaſſe with the fleſh of two Pullets, of ſo many Partridges, and with fifteene leaves of pure gold: make thereof a deſtillation over a ſoft fire. Then take of the diſtilled liquor, half a pint, ſtraine it through a woollen bagge, with two ounces of white Sugar, and halfe a dram of Cynamon: let the patient uſe this when he is thirſtie. Or elſe put the fleſh of one old Capon, and of a legge of Veale, two minced Partridges, and two drammes of whole Cinamon without any liquor, in a lembecke of glaſſe, well luted and covered, and ſo let them boile in *Balneo Mariæ* unto the perfect concoction. For ſo the fleſhes will bee boiled in their owne juice, without any hurt of the fire; then let the juice bee preſſed out therehence with a preſſe: give the patient for every doſe, one ounce of the juice with ſome cordiall waters, ſome *Triſantalum*, and *Diamargaritum frigidum*.

The preſerves of ſweet fruits are to bee avoided, becauſe that ſweet things turne into choler; but the confection of tart prunes, Cherries, and ſuch like may bee fitly uſed. But becauſe there is no kinde of ſickeneſſe that ſo weakens the ſtrength, as the plague; it is alwaies neceſſary, but yet ſparingly and often, to feed the patient, ſtill having reſpect unto his cuſtome, age, the region, and the time: for through emptineſſe there is great danger, leſt that the venemous matter that is driven out to the ſuperficiall parts of the body, ſhould be called backe into the inward parts, by an hungry

gry

grie ſtomacke, an d the ſtomacke it ſelfe ſhould bee filled with cholericke, hot, thin, and ſharp excrementall humours, whereof commeth biting of the ſtomack, and gripings in the guts.

Chap. XXI.

What drinke the Patient infected ought to uſe.

IF the feaver be great and burning, the patient muſt abſtain from wine, unleſſe that he be ſubject to ſwouning: and he may drinke the *Oxymel* following in ſtead thereof.

An Oxymel.

Take of faire water, three quarts, wherein boyle foure ounces of hony untill the third part bee conſumed, ſcumming it continually; then ſtrain it, and put it into a cleane veſſell, and adde thereto four ounces of vinegar, and as much cinamon as will ſuffice to give it a taſt. Or elſe a ſugred water, as followeth. Take two quarts of faire water, of hard ſugar, ſixe ounces, of cinamon, two ounces, ſtrain it through a woollen bagge or cloth without any boiling; and when the patient will uſe it, put thereto a little of the juice of Citrons. The ſyrupe of the juice of Citrons excelleth amongſt all others that are uſed againſt the peſtilence.

A Julep.

The uſe of the Julep following is alſo very wholſome. Take of the juice of Sorrell well clarified, halfe a pint, of the juice of Lettuce ſo clarified, foure ounces, of the beſt hard ſugar, one pound, boile them together to a perfection, let them bee ſtrained and clarified, adding a little before the end a little vinegar, let it be uſed betweene meales with boyled water, or with equall portions of the water of Sorrell, Lettuce, Scabious and Bugloſſe: or take of this former deſcribed Julep ſtrained and clarified foure ounces, let it be mixed with one pound of the forenamed cordiall waters, and boile them together a little. And when they are taken from the fire, put thereto of yellow Sanders one dram, of beaten Cinamon halfe a dram, ſtrain it through a cloth: when it is cold let it be given the patient to drink with the juice of Citrons.

Thoſe that have accuſtomed to drink Sider, Perry, Beer or Ale, ought to uſe that drink ſtill, ſo that it be clear, tranſparent, and thin, and made of thoſe fruits that are ſomwhat tart; for troubled & dreggiſh drink doth not only engender groſſe humors, but alſo crudities, windineſs, and obſtructions of the firſt region of the body, whereof comes a feaver.

The commodities of oxycrate.

To whom hurtfull,

Oxycrate being given in manner following, doth aſſwage the heat of the feaver, and repreſſe the putrefaction of the humours, and the fierceneſſe of the venome, and alſo expelleth the water through the veines, if ſo bee that the patients are not troubled with ſpitting of blood, cough, yexing, and altogether weake of ſtomacke: for ſuch muſt avoyd all tart things.

Take of faire water, one quart; of white or red vinegar three ounces; of fine Sugar, foure ounces; of ſyrup of Roſes, two ounces: boile them a little, and then give the patient thereof to drinke. Or take of the juice of Lemmons & Citrons, of each halfe an ounce; of juice of foure Pomegranates, two ounces; of the water of Sorrell and Roſes, of each one ounce; of faire water boyled, as much as ſhall ſuffice: make thereof a Julep, and uſe it betweene meales. Or take of Sirupe of Lemmons and of red Currance, of each one ounce; of the water of lillies, foure ounces; of faire water boyled, halfe a pinte; make thereof a Julep. Or take of the ſyrups of water Lillies, and vinegar, of each half an ounce, diſſolve it in five ounces of the water of Sorrell; of faire water one pinte: make thereof a Julep.

The drinking of cold water, to whom & when profitable.

But if the patient be young, and have a ſtrong and good ſtomacke, and cholericke by nature, I thinke it not unmeet for him to drinke a full and large draught of fountaine water cold; for that is effectuall to reſtraine and quench the heat of the Feaver, and contrariwiſe, they that drinke cold water often, and a very ſmall quantity at a time, as the Smith doth ſprinkle water on the fire at his Forge, doe encreaſe the heat

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and burning, and thereby make it endure the longer. Therfore by the judgment of *Celſus*, when the diſeaſe is in the chiefe encreaſe, and the patient hath endured thirſt for the ſpace of three or four daies, cold water muſt be given unto him in great quantity, ſo that he may drink paſt his ſatiety, that when his belly and ſtomacke are filled beyond meaſure, and ſufficiently cooled, he may vomit.

Some doe not drinke ſo much thereof as may cauſe them to vomit, but do drinke even unto ſatiety, and ſo uſe it for a cooling medicine; but when either of theſe is done, the patient muſt bee covered with many cloaths, and ſo placed that hee may ſleepe; and for the moſt part, after long thirſt and watching, and after long fulneſſe, and long and great heat, ſound ſleep commeth, by which great ſweat is ſent out, and that is a preſent helpe.

But thirſt muſt ſometimes be quenched with little pieces of Melons, Gourds, Cucumbers, with the leaves of Lettuce, Sorrell, and Purſlaine, made moiſt or ſoked in cold water, or with a little ſquare piece of a Citron, Lemmon, or Orange macerated in Roſe water, & ſprinkled with Sugar, and ſo held in the mouth, and then changed.

But if the patient be aged, his ſtrength weak, flegmatick by nature, & given to wine, when the ſtate of the Feaver is ſomewhat paſt, and the chiefe heat beginning to aſſwage, he may drink wine very much allayed at his meat, for to reſtore his ſtrength, and to ſupply the want of the waſted ſpirits. The patient ought not by any meanes to ſuffer great thirſt, but muſt mitigate it by drinking, or elſe allay it by waſhing his mouth with oxycrate and ſuch like, and he may therein alſo waſh his hands and his face, for that doth recreate the ſtrength. If the fluxe or laſk trouble him, he may very well uſe to drinke ſteeled water, and alſo boyled milke, wherein many ſtones comming red hot out of the fire have beene many times quenched.

For dryneſſe or roughneſſe of the mouth.

For the dryneſſe and roughneſſe of the mouth, it is very good to have a cooling, moiſtening and lenifying lotion of the mucilaginous water of the infuſion of the ſeeds of Quinces, *pſilium, id eſt*, Flea-wort, adding thereto a little Camphire, with the Water of Plantain and Roſes; then cleanſe and wipe out the filth, and then moiſten the mouth, by holding therein a little oile of ſweete Almonds mixed with a little ſyrupe of Violets.

For the Ulcers thereof.

If the roughneſſe breed or degenerate into Ulcers, they muſt be touched with the water of the infuſion of ſublimate, or *Aqua fortis*.

But becauſe wee have formerly made frequent mention of drinking of water, I have here thought good to ſpeake ſomewhat of the choice and goodneſſe of waters.

The choice of waters.

The choice of waters is not to be neglected, becauſe a great part of our diet depends thereon, for beſides that we uſe it either alone, or mixed with wine for drink, we alſo knead bread, boile meat, and make broaths therewith. Many thinke that rain water which falls in ſummer, and is kept in a ciſterne well placed and made, is the wholeſomeſt of all. Then next thereto they judge that ſpring water which runnes out of the tops of mountaines, through rocks, cliffes and ſtones: in the third place they put Well water, or that which riſeth from the foots of hils. Alſo the river water is good that is taken out of the midſt of ſtreame. Lake or pond water is the worſt, eſpecially if it ſtand ſtill; for ſuch is fruitfull of and ſtored with many venemous creatures, as Snakes, Toads, and the like. That which comes by the melting of Snow and Ice is very ill, by reaſon of the too-refrigerating faculty and earthy nature. But of ſpring and well waters theſe are to be judged the beſt, which are inſipide, without ſmell, & colour; ſuch as are cleare, warmiſh in winter, and cold in ſummer, which are quickly hot and quickly cold, that is, which are moſt light, in which all manner pulſe, turneps, and the like, are eaſily and quickly boyled.

Hip. ſect. 5. aphor. 26.

Laſtly, when as ſuch as uſually drink thereof, have cleer voices and ſhrill, their cheſts ſound, and a lively and freſh colour in their faces.

CHAP. XXII.

Of Antidotes to bee uſed in the Plague.

NOw we muſt treate of the proper cure of this diſeaſe, which muſt bee uſed as ſoone as may be poſſible, becauſe this kinde of poyſon in ſwiftneſſe exceedeth the celerity of the medicine. Therefore it is better to erre in this, that you ſhould think every diſeaſe to bee peſtilent in a peſtilent ſeaſon, and to cure it as the Peſtilence: becauſe that ſo long as the Ayre is polluted with the ſeeds of the Peſtilence, the humours in the body are ſoone infected with the vicinity of ſuch an ayre, ſo that then there happeneth no diſeaſe voyd of the Peſtilence, that is to ſay, which is not peſtilent from the beginning by his owne nature, or which is not made peſtilent.

The beginning of the cure muſt be by antidotes.

Many begin the cure with bloud-letting, ſome with purging, and ſome with Antidotes. We, taking a conſideration of the ſubſtance of that part that is aſſaulted, firſt of all begin the cure with an Antidote, becauſe that by its ſpecificke property, it defends the heart from poyſon, as much as it is offended therewith. Although there are alſo other Antidotes which preſerve & keep the heart & the patient from the danger of Poyſon and the Peſtilence, not onely becauſe they doe infringe the power of the poyſon in their whole ſubſtance, but alſo becauſe they drive and expell it out of all the body by ſweat, vomiting, ſcowring, and ſuch other kinds of evacuations.

In what quantity they muſt be taken.

Why poiſonous things are put into Antidotes.

Some poyſons Antidotes to otherſome.

The Antidote muſt be given in ſuch a quantity as may bee ſufficient to overcome the poyſon; but becauſe it is not good to uſe it in greater quantitie than needeth, leſt it ſhould overthow our nature, for whoſe preſervation onely it is uſed, therefore that which cannot bee taken together and at once, muſt bee taken at ſeverall times, that ſome portion thereof may daily bee uſed ſo long, untill all the accidents, effects and impreſſions of the poyſon be paſt, and that there be nothing to be feared. Some of thoſe Antidotes conſiſt of portions of venemous things, being tempered together, and mixed in an apt proportion with other medicines, whoſe power is contrary to the venome: as Treacle, which hath for an ingredient the fleſh of Vipers, that it being therto mixed may ſerve as a guide to bring all the antidote unto the place where the venenate malignity hath made the chiefe impreſſion; becauſe by the ſimilitude of nature and ſympathy, one poyſon is ſuddenly ſnatched and carryed unto another. There are other abſolute poiſonous, which nevertheleſſe are Antidotes one unto another: as a Scorpion himſelfe cureth the prick of a Scorpion. But Treacle and Mithridate excell all other Antidotes: for by ſtrengthening the nobleſt part, and the manſion of life, they repaire and recreate the waſted Spirits, and overcome the poyſon, not onely being taken inwardly, but alſo applyed outwardly to the region of the heart, Botches and Carbuncles: for by an hidden property they draw the poyſons unto them, as Amber doth Chaffe, and digeſt it when it is drawne, and ſpoile and robbe it of all its deadly force; as it is declared at large by *Galen*, in his booke *de Theriaca ad Piſonem*, by moſt true reaſons and experiments. But you will ſay that theſe things are hot, and that the Plague is often accompanied with a burning Feaver. But thereto I anſwer, there is not ſo great danger in the Feaver as in the Peſtilence, although in the giving of Treacle, I would not altogether ſeeme to neglect the Feaver, but think it good to miniſter or apply it mixed with cordiall cooling medicines, as with the Trochiſces of Camphire, ſyrupe of Lemons, of water Lillies, the water of Sorrell, and ſuch like. And for the ſame cauſe wee ought not to chooſe old Treacle, but that which is of a middle age, as of one or two yeares old: to thoſe that are ſtong, you may give halfe a dramme, and to thoſe that are more weake, a dram.

How to walke after the taking of an Antidote.

The patient ought to walke preſently after that hee hath taken Treacle, Mithridate, or any other Antidote; but yet as moderately as hee can: not like unto many, which when they perceive themſelves to bee infected, doe not ceaſe to courſe and run up and downe, untill they have no ſtrength to ſuſtaine their bodies, for ſo they diſſolve nature, ſo that it cannot ſuffice to overcome the contagion. After moderate

rate walking, the patient muſt be put warm to bed, and covered with many clothes, & warm brick-bats or tiles applyed to the ſoles of his feet; or in ſtead thereof you may uſe ſwines bladders filled with hot water, and apply them to the groines and arme-holes, to provoke ſweate: for ſweating in this diſeaſe is a moſt excellent remedy, both for to evacuate the humours in the Feaver, and alſo to drive forth the malignity in the Peſtilence, although every ſweate brings not forth the fruit of health. For *George Agricola* ſaith, that hee ſaw a woman at *Miſnia* in Germanie, that did ſweat ſo for the ſpace of three dayes, that the bloud came forth at her head and breaſt, & yet neverthleſſe ſhee died.

A ſudorifick potion.

A ſudorifick powder.

This potion following will provoke ſweate. Take the roots of China ſhaved in thinne pieces one ounce and halfe; of *Guajacum* two ounces; of the barke of Tamariske one ounce; of Angelica roots two drams; of the ſhaving of Hatſ-horne one ounce; of Juniper berries three drams; put them into a viall of glaſſe that wil contain ſixe quarts, put thereto foure quarts of running or river water that is pure and cleare, macerate them for the ſpace of one whole night on the hot aſhes: and in the morning boile them all in *Balneo Mariæ*, untill the halfe bee conſumed, which will bee done in the ſpace of ſixe houres; then let them be ſtrained through a bagge, and then ſtrained againe, but let that be with ſixe ounces of ſugar of Roſes, and a little Treacle: let the patient take eight ounces or fewer of that liquor, and it will provoke ſweat. The powder following is alſo very profitable. Take of the leaves of *Dictamnus*, the roots of Tormentill, Betony, of each halfe an ounce, of bole Armenicke prepared one ounce, of *Terra Sigillata* three drams, of Aloes and Myrrhe, of each halfe a dram, of Saffron one dram, of Maſticke two drams: powder them all according to art, and give one dram thereof diſſolved in Roſe-water, or the water of wild ſorrell, and let the patient walke ſo ſoone as he hath taken that powder; then let him be laid in his bed to ſweat as I have ſhewed before.

A diſtilled water againſt the Plague.

Another.

What meane to be uſed in ſweating.

The water following is greatly commended againſt poyſon. Take the roots of Gentian & Cyperus, of each three drams; of *Carduus benedictus*, Burnet, of each one handfull; of Sorrell ſeeds and Divels-bit, of each two pugils; of Ivie and Juniper berries, of each halfe an ounce; of the flowers of Bugloſſe, Violets and red Roſes, of each two pugils: powder them ſomewhat groſſely, then ſoake or ſteepe them for a night in white wine and Roſe water: then adde thereto of bole Armenick one ounce, of Treacle halfe an ounce, diſtill them all in *Balneo Mariæ*, and keepe the diſtilled liquor in a vial of glaſſe wel covered or cloſe ſtopped for your uſe: let the patient take ſixe ounces thereof with Sugar and a little Cinamon & Saffron: then let him walk, and then ſweat as is aforeſaid: the Treacle and cordiall water formerly preſcribed are very profitable for this purpoſe. Alſo the water following is greatly commended. Take of Sorrell ſixe handfuls, of Rue one handfull: dry them & macerate them in vinegar for the ſpace of foure and twenty houres, adding thereto foure ounces of Treacle: make thereof a diſtillation in *Balneo Mariæ*, and let the diſtilled water bee kept for your uſe; and ſo ſoone as the patient doth thinke himſelfe to be infected, let him take foure ounces of that liquor, then let him walke and ſweate. He muſt leave ſweating when he beginneth to waxe faint and weake, or when the humour that runs downe his body begins to waxe cold, then his body muſt be wiped with warme clothes, and dryed. The patient ought not to ſweat with a full ſtomacke, for ſo the heat is called away from performing the office of concoction: alſo he muſt not ſleep when he is in his ſweat, leſt the malignity goe inwardly with the heat and ſpirits unto the principall parts; but if the patient bee much inclined to ſleep, hee muſt bee kept from it with hard rubbing, and bands tyed about the extreme parts of his body, and with much noiſe of thoſe that are about him, and let his friends comfort him with the good hope that they have of his recovery; but if all this will not keepe him from ſleepe, diſſolve *Caſtoreum* in tart Vinegar, and *Aqua vitæ*, and let it bee injected into his noſtrils: and let him bee kept continually waking the firſt day, and on the ſecond and third, even unto the fourth; that is to ſay, unto the perfect expulſion of the venome; and let him not ſleep above three or foure houres on a day and night. In the meane time let the Phyſician that ſhall bee preſent conſider all things by his ſtrength: for it is to be feared, that great watchings will diſſolve the ſtrength, and make the patient weake: you muſt not let him eate within three houres after his ſweating; in the meane ſeaſon, as his ſtrength ſhall require, let him take the rinde of a preſerved Citron, conſerve of Roſes, bread toaſted and ſteeped in wine, the meat of a preſerved Myrabolane, or ſome ſuch like thing.

CHAP. XXIII.

Of Epithemes to be uſed for the ſtrengthening of the principall parts.

THere are alſo ſome topick medicines to bee reckoned amongſt Antidotes, which muſt be outwardly applyed as ſpeedily as may be, as cordiall and hepaticke Epithemes for the ſafety of the noble parts, and ſtrengthening of the faculties, as thoſe that drive the venenate aire farre from the bowels: they may be made of cordiall things not onely hot, but alſo cold, that they may temper the heat, and more powerfully repercuſſe. They muſt be applyed warme with a ſcarlet, or a double linnen cloth, or a ſoft ſpunge dipped in them, if ſo be that a Carbuncle doe not poſſeſſe the regions of the noble parts, for it is not fit to uſe repercuſſives to a Carbuncle. You may make Epithemes after the following formes; ℞. *aquar. roſ. plantag. & ſolan. an* ℥iv. *aquæ acetoſ. vini granat. & aceti, an.* ℥iii. *ſantal. rub. & coral. rub. pulveriſ. an.* ʒiii. *theriac. vet.* ℥ß. *camph.* ℈ii. *croci* ℈i. *carioph.* ʒß. *miſce, fiat epithema.* Or elſe, R. *aqu. roſ. & plantag. an.* ℥x. *aceti roſ.* ℥iv. *carioph. ſant. rub. coral. rub. pulveriſ. pul. diamargarit. frigid. an.* ʒiß. *caphuræ & moſchi an.* ℈i. *fiat epithema.* Or, ℞. *aquar. roſar. & meliſſæ, an.* ℥iv. *aceti roſ.* ℥iii. *ſant. rub.* ʒi. *caryophyl.* ʒß. *croci.* ℈ii. *caphuræ* ℈i. *boli arm. terræ ſigil. & Zedoar. an.* ʒi. *fiat epithema.* Or elſe, ℞. *aceti roſat. & aquæ roſat. an* ℔. ß. *caphuræ* ʒß. *theriac. & mithridat. an.* ʒi. *fiat epithema.* Or elſe, *aqu. roſar. nenuph. bugloſ. acetoſæ, aceti roſar. an.* ℔. ß. *ſant. rub. roſ. rub. an.* ʒiii. *flor. nenuph. violar. caphur. an.* ʒß. *mithrid. & theriac. an.* ʒii. *terantur & miſceantur ſimul omnia.* When you intend to uſe them, take ſome portion of them in a veſſell by its ſelfe, wherewith let the affected bowell be fomented warme.

Whereof they muſt be made.

Repercuſsives not fit to be applyed to Carbuncles.

CHAP. XXIIII.

Whether purging and bloud-letting bee neceſſary in the beginning of peſtilent diſeaſes.

SO ſoon as the heart is ſtrengthened & corroberated with cordials & antidotes, we muſt come to phlebotomy & purging. As concerning bloud-letting in this caſe, there is a great controverſie among Phyſicians. Thoſe that wiſh it to be uſed, ſay or affirme that the peſtilent Feaver doth infixe it ſelfe in the bloud, and therein alſo the peſtilent malignity taketh its ſeate; and therefore it will ſoone infect the other humours, unleſſe that the bloud be evacuated, & the infection that remaineth in the bloud be thereby taken away. Contrariwiſe, thoſe that do not allow phlebotomy in this caſe, alledge, that it often commeth to paſſe that the bloud is voyd of malignity when the other humours are infected with the venemous contagion. If any man require my judgement in this doubtfull queſtion, I ſay, that the peſtilence ſometimes doth depend on the default of the aire: This default being drawne through the paſſages of the body, doth at length pierce unto the entrals, as we may underſtand by the abſceſſes which breake out one while behind the eares, ſometimes in the arme-holes, and ſometimes in the groines, as the braine, heart or liver are infected. And hereof alſo come Carbuncles, and other collections of matter, and eruptions, which are ſeene in all parts of the body, by reaſon that nature uſing the ſtrength of the expulſive faculty, doth drive forth whatſoever is noyſome or hurtfull. Therefore if the Phyſician will follow this motion of nature, he muſt neither purge nor let bloud, leſt that by a contrary motion, that is, by drawing in from without, the motion of nature which proceeds outward-

Reaſons for and againſt bloud-letting in the Plague.

The compoſing of this controverſie.

ly from within, ſhould be troubled. So wee often ſee in thoſe who are purged or let bloud for ſuch Buboes as come through unlawfull copulation, that the matter is thereby made contumacious, and by drawing it inwardly, it ſpeedily cauſeth the French Pocks.

Wherefore, when Buboes, Carbuncles and other peſtilent eruptions appeare, which come through the default of the Aire, we ought to abſtain from purging and phlebotomie; but it is ſufficient to fore-arme the heart inwardly and outwardly with Antidotes that are endued with a proper vertue of reſiſting the poyſon. For it is not to bee doubted, but that when nature is debilitated with both kindes of evacuation, aud when the ſpirits together with the bloud are exhauſted, the venemous Aire will ſoone pierce, and be received into the empty body, where it exerciſeth its tyranny to the utter deſtruction thereof.

A hiſtory.

In the yeare of our Lord God 1565. in which yeare there was great mortality throughout all France, by reaſon of the peſtilence and peſtilent diſeaſes, I earneſtly & diligently enquired of all the Phyſicians & Chirurgians of all the Cities (through which King *Charles* the ninth paſſed in his progreſſe unto Bayon) what ſucceſſe their patients had after they were letten bloud and purged, whereunto they all anſwered alike, that they had diligently obſerved, that all that were infected with the Peſtilence, and were letten bleed ſome good quantity of bloud, or had their bodies ſomewhat ſtrongly purged, thenceforwards waxed weaker and weaker, and ſo at length dyed; but others which were not let bloud nor purged, but took cordiall Antidotes inwardly, and applyed them outwardly, for the moſt part eſcaped and recovered their health: for that kind of Peſtilence tooke its originall of the primitive and ſolitary default of the Aire, and not of the corruption of the humours.

When purging and bleeding may be uſed.

The like event was noted in the hoarſeneſſe that we ſpake of before: that is to ſay, that the patients waxed worſe and worſe by purging and phlebotomie; but yet I doe not diſallow either of thoſe remedies, if there be great fulneſſe in the body, eſpecially in the beginning, and if the matter have a cruell violence, whereof may bee feared the breaking in unto ſome noble part. For wee know that it is confirmed by *Hypocrates*, that what diſeaſe ſoever is cauſed by repletion, muſt be cured by evacuation: and that in diſeaſes that are very ſharpe, if the matter do ſwell, it ought to be remedied the ſame day, for delay in ſuch diſeaſes is dangerous; but ſuch diſeaſes are not cauſed or inflicted upon mans body by reaſon or occaſion of the peſtilence, but of the diſeaſed bodies, and diſeaſes themſelves commixed together with the Peſtilence; therefore then peradventure it is lawfull to purge ſtrongly, and to let a good quantity of bloud, leſt that the peſtilent venome ſhould take hold of the matter that is prepared, and ſo infect it with a contagion, whereby the Peſtilence taketh new and farre greater ſtrength; eſpecially as *Celſus* admoniſheth us, where he ſaith; that, By how much the ſooner thoſe ſudden invaſions doe happen, by ſo much the ſooner remedies muſt be uſed, yea or rather raſhly applyed; therefore if the veines ſwell, the face waxe fiery red, if the arteries of the temples beat ſtrongly, if the patient can very hardly breathe by reaſon of a weight in his ſtomacke, if his ſpittle be bloudy, then ought he to bee let bloud without delay, for the cauſes before mentioned. It ſeems beſt to open the liver veine on the left arme, whereby the heart and the ſpleene may be better diſcharged of their abundant matter; yet bloud-letting is not good at all times, for it is not expedient when the body beginneth to waxe ſtiffe by reaſon of the comming of a Feaver; for then by drawing backe the heat and ſpirits inwardly, the outward parts being deſtitute of bloud, waxe ſtiffe and cold; therefore bloud cannot bee letten then without great loſſe of the ſtrength, and perturbation of the humours. And it is to be noted, that when thoſe plethoricke cauſes are preſent, there is one Indication of bloud-letting in a ſimple peſtilent Feaver, and another in that which hath a *Bubo, id eſt*, a Botch or a Carbuncle joined therwith. For in one or both of theſe, being joyned with a vehement & ſtrong burning Feaver, bloud muſt be letten by opening the veine that is neareſt unto the tumour or ſwelling againſt nature, keeping the ſtraightneſs of the fibres, that this being open, the bloud might be drawn more directly from the part affected; for all and every retraction of putrefied bloud unto the noble parts, is to be avoyded, becauſe it is noyſome and hurtful to nature, and

Aph. 22. ſect. 2.
Aph. 10. ſect. 4.

Cap. 7. lib 3.

Why bloud muſt be let on the left arme in the Plague.

to the patient. Therefore, for example ſake, admit the patient be plethoricke by repletion, which is called *Ad vaſa, id eſt*, unto the veſſels, and *Ad vires, id eſt*, unto the ſtrength: and therewithall he hath a tumour that is peſtilent in the parts belonging unto his head or necke, the bloud muſt bee let out of the cephalick or median veine, or out of one of their branches diſperſed in the arme on the grieved ſide. But if through occaſion of fatte, or any other ſuch like cauſe, thoſe veines doe not appeare in the arme, there bee ſome that give counſell in ſuch a caſe to open the veine that is betweene the fore-finger and the thumbe, the hand being put into warme water, whereby that veine may ſwell and be filled with bloud, gathered thither by meanes of the heate.

If the tumour be under the arme-hole, or about thoſe places, the liver veine, or the median muſt be opened which runneth alongſt the hand: if it be in the groine, the veine of the hamme, or *Saphena*, or any other veine above the foote that appeareth well, but alwaies on the grieved ſide. And phlebotomie muſt bee performed before the third day: for this diſeaſe is of the kind or nature of ſharpe diſeaſes; becauſe that within foure and twenty houres it runneth paſt helpe. In letting of bloud you muſt have conſideration of the ſtrength. You may perceive that the patient is ready to ſwoune, when that his forehead waxeth moyſt, with a ſmall ſweate ſuddenly ariſing, by the aking or paine at the ſtomacke, with an appetite to vomit, and deſire to goe to ſtoole, gaping, blackneſſe of the lippes, and ſudden alteration of the face unto paleneſſe: and laſtly moſt certainely by a ſmall and ſlow pulſe: and then you muſt lay your finger on the veine, and ſtop it untill the patient come to himſelfe againe, either by nature, or elſe reſtored by art; that is to ſay, by giving unto him bread dipped in wine, or any other ſuch like thing: then, if you have not taken bloud enough, you muſt let it goe againe, and bleed ſo much as the greatneſſe of the diſeaſe, or the ſtrength of the patient will permit or require: which being done, ſome one of the Antidotes that are preſcribed before will be very profitable to be drunk, which may repaire the ſtrength, and infringe the force of the malignity.

CHAP. XXV.

Of purging medicines in a peſtilent diſeaſe.

What purges fit in the Plague.

Pils.

IF you call to minde the proper indications, purging ſhall ſeeme neceſſary in this kinde of diſeaſe, and that muſt bee preſcribed as the preſent caſe and neceſſity requireth; rightly conſidering that the diſeaſe is ſudden, and doth require medicines that may with all ſpeede drive out of the body the hurtfull humour wherein the noyſome quality doth lurke and is hidden; which medicines are diverſe by reaſon of the diverſity of the kinde of the humour, and the condition or temperature of the patient. For this purpoſe ſixe graines of Scammonie beaten into powder, or elſe tenne graines are commonly miniſtred to the patient with one dram of Treacle. Alſo pils may be made in this forme: Take of Treacle and Mithridate, of each one dram; of *Sulphur vivum* finely powdred halfe a dram; of *Diagridium* foure graines: make thereof Pils. Or, Take three drams of Aloes; of Myrrhe and Saffron, of each one dram; of white Hellebore and Aſarabacca, of each foure ſcruples: make thereof a maſſe with old Treacle, and let the patient take foure ſcruples thereof for a doſe, three houres before meate. *Ruffus* his pils may be profitably given to thoſe that are weake. The ancient Phyſicians have greatly commended Agarick for this diſeaſe, becauſe it doth draw the noyſome humours out of all the members: and the vertues thereof are like unto thoſe of Treacle; for it is thought to ſtrengthen the heart, and to draw out the malignity by purging. To thoſe that are ſtrong the weight of two drams may be given, and to thoſe that are more weake, halfe a dram. It is better to give the infuſion in a decoction, than in ſubſtance; for being elected and prepared truly into Trochiſes, it may be called a moſt divine kinde of medicine.

Antimonium is highly prayſed by the experience of many; but becauſe I know the uſe thereof is condemned by the councell and decree of the School of Phyſicians at Paris, I will here ceaſe to ſpeake of it.

Thoſe medicines that cauſe ſweats are thought to excell all others, when the Peſtilence commeth of the venemous Ayre: among whom the efficacy of that which followeth hath beene proved, to the great good of many in that Peſtilence which was lately throughout all Germany, as *Matthias Rodler* Chancellor to Duke *George* the Count Palatine ſignified unto me by letters.

An effectuall ſudorifick and alſo purging medicine.

They doe take a bundle of Mugwort, and of the aſhes thereof after it is burnt, they make a lye with foure pints of water; then they doe ſet it over the fire, and boyle it in a veſſell of earth well leaded, untill the liquor be conſumed, the earthy dregges falling unto the bottome like unto ſalt, whereof they make Trochiſces of the weight of a crowne of gold: then they diſſolve one or two of thoſe Trochiſces, according to the ſtrength of the patient, in good Muskadine, and give it the patient to drinke, and let him walke after that hee hath drunke it for the ſpace of halfe an houre; then lay him in his bed, and there ſweat him two or three houres, and then he will vomit, and his belly will bee looſed as if hee had taken Antimony; and ſo they were all for the moſt part cured, eſpecially all thoſe that tooke that remedy betimes, and before the diſeaſe went unto their heart, as I my ſelfe have proved in ſome that were ſicke at Paris, with moſt happy ſucceſſe: Truely Mugwort is highly commended by the ancient Phyſicians, being taken and applyed inwardly or outwardly againſt the bitings of venemous creatures, ſo that it is not to be doubted but that it hath great vertue againſt the Peſtilence.

The vertues of Mugwort.

Vide Rondelet. Lib. 7. de piſ. c. 3.

I have heard it moſt certainly reported by *Gilbertus Heroaldus* Phyſician of *Mompilier*, that eight ounces of the pickle of Anchoves, drunke at one draught, is a moſt certaine and approved remedie againſt the Peſtilence, as he and many other have often found by experience. For the plague is no other thing but a very great putrefaction; for the correction and amendment whereof, there is nothing more apt or fit than this pickle or ſubſtance of the Anchoves, being melted by the ſun and force of the ſalt that is ſtrawed thereon. There be ſome which infuſe one dramme of Walewort ſeede in white wine, and affirme that it drunken will performe the like effect as Antimony. Others diſſolve a little weight of the ſeed of Rue being bruiſed in Muſkadine, with the quantity of a Beane of Treacle, and ſo drinke it. Others beate or bruiſe an handfull of the leaves or tops of Broome in halfe a pint of white wine, and ſo give it to the patient to drinke, to cauſe him to vomit, looſe his belly, and make him to ſweat. Truly thoſe that are wounded or bitte with venemous beaſts, if they bind broome above the wound, it will prohibit or hinder the venome from diſperſing it ſelfe, or going any further: therefore a drink made thereof will prohibit the venome from going any nearer the heart. Some take of the roote of Elecampaine, Gentian, Tormentill, Kermes berries and broom; of the powder of Ivory and Hartſhorne, of each halfe a dram: they doe bruiſe and beate all theſe, and infuſe them for the ſpace of foure and twenty houres in white wine and *Aqua vitæ* on the warm embers, and then ſtraine it, and give the patient three or foure ounces thereof to drinke; this provokes ſweat, and infringeth the power of the poyſon: and the potion following hath the ſame vertue.

A Potion.

Take good Muſtard half an ounce, of Treacle or Mithridate the weight of a Bean, diſſolve them in white wine, and a little *Aqua vitæ*, and let the patient drinke it, and ſweat thereon with walking. You may alſo roaſt a great Onion made hollow, and filled with halfe a dram of Treacle and Vinegar under the embers; and then ſtraine it, and mixe the juice that is preſſed out of it with the water of Sorrell, *Carduus Benedictus*, or any other cordiall thing, and with ſtrong wine, and give the patient to drinke thereof to provoke ſweat, and to repell the malignity. Or elſe take as much Garlick as the quantity of a big Nut; of Rue and Celandine, of each twenty leaves, bruiſe them all in white wine and a little *Aqua vita*; then ſtraine it, and give the patient thereof to drink. There be ſome that doe drink the juice that is preſſed out of Celandine and Mallowes, with three ounces of Vinegar, and halfe an ounce of the oyle of Wall-nuts, and then by much walking doe unburthen their ſtomack and belly upwards and downewards, and ſo are helped. When the venemous ayre hath already crept into and infected the humors, one dram of the dryed leaves of the Bay tree macerated for the ſpace of two dayes in Vinegar and drunke, is thought to bee a moſt ſoveraigne medicine to provoke ſweat, looſeneſſe of the belly, and vomiting.

Mathiolus in his Treatiſe *de Morbo Gallico* writeth, that the powder of Mercury miniſtred unto the patient with the juice of *Carduus Benedictus*, or with the electuary *de Gemmis*, will drive away the Peſtilence before it be confirmed in the body, by provoking vomit, looſeneſs of the belly & ſweat: one dram of Calchanthum or white Copperoſe diſſolved in Roſe-water, performeth the like effect in the ſame diſeaſe. Some do give the patient a little quantity of the oyle of Scorpions with white wine to expel the poyſon by vomit, & therewithall they anoint the region of the heart, the breaſt and the wreſts of the hands. I think theſe very meet to be uſed often in bodies that are ſtrong and wel exerciſed, becauſe weaker medicines do evacuate little or nothing at all, but onely move the humours, whereby commeth a Feaver. When a ſufficient quantity of the malignity is evacuated, then you muſt miniſter things that may ſtrengthen the belly and ſtomack, and withhold the agitation or working of the humours: and ſuch is the confection of Alkermes.

The effects of mercury & copperoſe againſt the Plague.

CHAP. XXVI.

Of many Symptomes which happen together with the Plague: and firſt of the paine of the head.

IF the malignity be carryed into the braine, and nature be not able to expell it, it inflames not onely it, but alſo the membranes that cover it: which inflammation doth one while hurt, trouble, or aboliſh the imagination, another while the judgement, and ſometimes the memory, according to the ſituation of the inflammation, whether it bee in the former, hinder or middle part of the head; but hereof commeth alwayes a Phrenſie, with fiery redneſſe of the eyes and face, and heavineſſe and burning of the whole head. If this will not be amended with Cliſters, and with opening the Cephalicke veine in the arme, the arteries of the temples muſt be opened, taking ſo much bloud out of them, as the greatneſſe of the Symptomes and the ſtrength of the patient ſhall require and permit. Truly the inciſion that is made in opening of an arterie will cloſe and joyne together as readily, and with as little difficulty, as the inciſion of a veine. And of ſuch an inciſion of an artery, commeth preſent helpe, by reaſon that the tenſive and ſharpe vapours do plentifully breath out together with the arterious bloud. It were alſo very good to provoke a fluxe of bloud at the noſe, if nature be apt to exonerate herſelfe that way. For, as *Hippocrates* ſaith, when the head is grieved, or generally aketh, if matter, water, or bloud flow out at the noſtrils, mouth or eares, it preſently cures the diſeaſe. Such bleeding is to be provoked by ſtrong blowing, or ſtriving to cleanſe the noſe, by ſcratching or picking of the inner ſides of the noſtrils, by pricking with an horſe haire, and long holding downe of the head.

The cauſe of phrenſie in the Plague.

The benefit of opening an artery.

Aph.10.ſect.6.

The Lord of Fontains, a Knight of the Order, when we were at Bayon, had a bleeding at the noſe, which came naturally for the ſpace of two dayes, and thereby hee was freed of a peſtilent Feaver which he had before, a great ſweat riſing therewithall, and ſhortly after his Carbuncles came to ſuppuration, and by Gods grace he recovered his health being under my cure. If the bloud doe flow out and cannot be ſtopped when it ought, the hands, armes, and legges muſt be tyed with bands, and ſponges wet in Oxycrate muſt be put under the arme-holes, cupping-glaſſes muſt be applyed unto the dugges, the region of the liver and ſpleen; and you muſt put into the noſtrils, the doune of the willow tree, or any other aſtringent medicine, incorporated with the haires pluckt from the flanke, belly or throat of a Hare, bole Armenicke, *Terra Sigillata*, the juice of Plantain and Knot-graſſe mixed together; and furthermore the patient muſt be placed or laied in a coole place. But if the pain bee nothing mitigated notwithſtanding all theſe fluxes of bloud, we muſt come to medicines that procure ſleep, whoſe formes are theſe.

A hiſtory.

To ſtay bleeding.

Take

Medicines to procure ſleep.

Take of green Lettuce one handfull, flowers of water Lillies and Violets, of each two pugils, one head of white Poppy bruiſed, of the foure cold ſeeds, of each two drams, of Liquorice and Raiſons, of each one dram: make thereof a decoction, and in the ſtraining diſſolve one ounce and an halfe of *Diacodion*: make thereof a large potion to be given when they goe to reſt. Alſo a Barly-creame may be prepared in the water of water-Lillies and of Sorrell, of each two ounces, adding thereto ſixe or eight graines of *Opium*: of the foure cold ſeeds, and of white Poppy ſeeds, of each halfe an ounce, and let the ſame be boyled in broths with Lettuce and Purſlaine; alſo the Pils *de Cynogloſſo, id eſt*, Hounds tongue may be given. Cliſters that provoke ſleep muſt be uſed, which may be thus prepared:

Take of Barly-water, halfe a pinte; oyle of Violets and water-Lillies, of each two ounces; of the water of Plantaine and Purſlaine, or rather of their juices, three ounces; of Camphire ſeven graines, and the whites of three egges: make thereof a Cliſter. The head muſt be fomented with Roſe-vinegar, the haire being firſt ſhaven away, leaving a double cloth wet therein on the ſame, and often renewed. Sheepes lungs taken warme out of the bodies, may be applyed to the head, as long as they are warme. Cupping-glaſſes with and without ſcarification, may be applyed to the neck and ſhoulder-blades. The armes and legs muſt be ſtrongly bound, being firſt wel rubbed to divert the ſharpe vapours and humours from the head. Frontals may alſo bee made on this manner. Take of the oyle of Roſes and water-Lillies, of each two ounces, of the oyle of Poppy halfe an ounce, of *Opium* one dram, of Roſe-vinegar one ounce, of Camphire halfe a dram, mixe them together. Alſo Nodules may bee made of the flowers of Poppies, Henbane, water-Lillies, Mandrakes beaten in Roſe-water with a little Vinegar, and a little Camphire, and let them be often applyed to the noſtrils: for this purpoſe Cataplaſmes alſo may be laid to the forehead. As, Take of the mucilage of the ſeeds of *Pſilium, id eſt*, Flea-wort, and Quince ſeeds extracted in Roſe-water, three ounces; of Barly-meale foure ounces; of the powder of Roſe-leaves, the flowers of water-Lillies and Violets, of each halfe an ounce; of the ſeeds of Poppies and Purſlaine of each two ounces; of the water and vinegar of Roſes, of each three ounces: make thereof a Cataplaſme, and apply it warme unto the head.

A Cataplaſme.

Or take of the juice of Lettuce, water-Lillies, Henbane, Purſlaine, of each halfa pint; of Roſe-leaves in powder, the ſeeds of Poppy, of each halfe an ounce; oyle of Roſes three ounces; of Vinegar two ounces; of Barly-meale as much as ſhall ſuffice: make thereof a Cataplaſme in the forme of a liquid Pultis. When the heate of the head is mitigated by theſe medicines, and the inflammation of the braine aſſwaged, wee muſt come unto digeſting and reſolving fomentations, which may diſperſe the matter of the vapours. But commonly in paine of the head, they doe uſe to bind the forehead and hinder part of the head very ſtrongly, which in this caſe muſt bee avoyded.

CHAP. XXVII.

Of the heat of the Kidnies.

An ointment for the reines.

THe heat of the kidnies is tempered by anointing with *unguent. refrigerans Galen.* newly made, adding therto the whites of egs wel beaten, that ſo the ointment may keep moyſt the longer; let this liniment bee renewed every quarter of an houre, wiping away the reliques of the old. Or, ℞. *aq. roſ.* ℔. ß. *ſucci plant.* ℥iv. *alb. ovorum* iv. *olei roſacei, & nenuph. an.* ℥ii. *aceti roſ.* ℥iii. *miſce ad uſum.* When you have anointed the part, lay thereon the leaves of water-Lillies or the like cold herbs, & then preſently thereupon a double linnen cloth dipped in oxycrate & wrung out againe, and often changed; the patient ſhall not lye upon a feather bed, but on a quilt ſtuffed with the chaffe of oates, or upon a matte with many doubled clothes or Chamelet ſpread thereon. To the region of the heart may in the meane time bee applyed a refrigerating and alexiteriall medicine, as this which followeth.

℞. *ung. roſat.* ℥iii. *olei nenupharini*, ℥ii. *aceti roſ. & aquæ roſar. an.* ℥i. *theriacæ*, ʒi. *croci*, ʒß. Of theſe melted and mixed together make a ſoft ointment, which ſpred upon a ſcarlet cloth may be applyed to the region of the heart. Or, ℞. *theriacæ opt.* ʒiß. *ſucci citri acidi, & limonis, an.* ℥ß. *coral. rub. & ſem. roſar. rub. an.* ʒß. *caphuræ, & croci, an.* gra. iiii. let them bee all mixed together, and make an ointment or liniment.

An ointment for the heart.

At the head of the patient as he lies in his bed, ſhall be ſet an Ewre or cocke with a baſon under it to receive the water, which by dropping may reſemble raine. Let the ſoles of the feet and palmes of the hands be gently ſcratched, and the patient lye far from noiſe, and ſo at length he may fall to ſome reſt.

The noiſe of dropping water drawes on ſleep.

CHAP. XXVIII.

Of the Eruptions and Spots, which commonly are called by the name of Purples and Tokens.

THE ſkinne, in peſtilent feavers, is marked and variegated in divers places with ſpots, like unto the bitings of Fleas or Gnats, which are not alwaies ſimple, but many times ariſe in forme like unto a graine of millet. The more ſpots appeare, the better it is for the patient: they are of divers colours according to the virulency of the malignity, and condition of the matter, as red, yellow, browne, violet, or purple, blew and blacke. And becauſe for the moſt part they are of a purple colour, therefore wee call them Purples. Others call them *Lenticulæ*, becauſe they have the colour and forme of Lentiles. They are alſo called *Papiliones* (*i*) Butterflies, becauſe they doe ſuddenly ſeaze or fall upon divers regions of the body, like unto winged Butterflyes, ſometimes the face, ſometimes the armes and legges, and ſometimes all the whole body; often times they doe not onely affect the upper part of the skin, but goe deeper into the fleſh, ſpecially when they proceed of matter that is groſſe and aduſt. They doe ſometimes appeare great and broad, affecting the whole arme, legge or face, like unto an *Eryſipelas*: to conclude, they are divers according to the variety of the humour that offends in quality or quantity.

The differences of the ſpots in the plague.

Their ſeverall names, and the reaſons of them.

If they are of a purple or black colour, with often ſwouning, and ſinke in ſuddenly without any manifeſt cauſe, they foreſhew death.

When ſignes of death.

The cauſe of the breaking out of thoſe ſpots, is the working or heat of the blood, by reaſon of the cruelty of the venome received, or admitted. They often ariſe at the beginning of a peſtilent feaver: many times before the breaking out of the Sore, or Botch, or Carbuncle, and many times after: but then they ſhew ſo great a corruption of the humours in the body, that neither the Sores, nor Carbuncles will ſuffice to receive them, and therefore they appear as forerunners of death. Sometimes they breake out alone, without a Botch or Carbuncle; which if they bee red, and have no evill ſymptomes joyned with them, they are not wont to prove deadly: they appeare, for the moſt part, on the third or fourth day of the diſeaſe, and ſometimes later, and ſometimes they appeare not before the patient be dead, becauſe the working or heat of the humours being the off-ſpring of putrefaction, is not as yet reſtrained and ceaſed.

Wherefore then principally the putride heat, which is greateſt a little before the death of the patient, drives the excremental humors, which are the matter of the ſpots unto the skin; or elſe becauſe nature in the laſt conflict hath contended with ſome greater endeavour than before (which is common to all things that are ready to dye) a little before the inſtant time of death, the peſtilent humour being preſently driven unto the skinne; and nature thus weakened by this extreme conflict, falleth downe proſtrate, and is quite overthrowne by the remnant of the matter.

Why they ſometimes appeare after the death of the patient.

CHAP.

Chap. XXIX.

Of the Cure of Eruptions and Spots.

They are to be cured by driving forth.

YOU muſt firſt of all take heed leſt you drive in the humour that is comming outwards with repercuſſives: therfore beware of cold, all purging things, Phlebotomy, and drowſie or ſound ſleeping. For all ſuch things doe draw the humours inwardly, and work contrary to nature. But it is better to provoke the motion of nature outwardly, by applying of drawing medicines outwardly and miniſtring medicines to provoke ſweat inwardly, for otherwiſe by repelling & ſtopping the matter of the eruptions, there will bee great danger leſt the heart be oppreſſed with the abundance of the venome flowing back; or elſe by turning into the belly, it inferres a mortall bloody fluxe: which diſcommodities that they may bee avoided, I have thought good to ſet downe this remedy, whoſe efficacy I have knowne and proved many times, and on divers perſons, when by reaſon of the weakneſſe of the expulſive faculty, and the thickneſſe of the skinne, the matter of the ſpots cannot breake forth, but is conſtrained to lurke under the skin, lifting it up into bunches and knobs.

The indication of curing taken from the like.

I was brought unto the invention of this remedy, by compariſon of the like. For when I underſtood that the eſſence of the French pockes (and likewiſe of the peſtilence) conſiſted in a certain hidden virulency, and venemous quality, I ſoon deſcended unto that opinion, that even as by the anointing of the body with the unguent compounded of Quick-ſilver, the groſſe and clammy humors which are fixed in the bones, and unmoveable, are diſſolved, relaxed, and drawne from the center into the ſuperficiall parts of the body, by ſtrengthening and ſtirring up the expulſive faculty, and evacuated by ſweating and fluxing at the mouth; that ſo it ſhould come to paſſe in peſtilent Feavers, that nature being ſtrengthened with the ſame kinde of unction, might unloade her ſelfe of ſome portion of the venemous and peſtilent humour, by opening the pores and paſſages, and letting it breake forth into ſpots and puſtles, and into all kind of eruptions. Therefore I have anointed many in whom nature ſeemed to make paſſage for the venemous matter very ſlowly, firſt looſing their belly with a Cliſter, and then giving them Treacle water to drinke, which might defend the vitall faculty of the heart, but yet not diſtend the ſtomack, as though they had had the French pockes, and I obtained my expected purpoſe: in ſtead of the Treacle water you may uſe the decoction of *Guajacum*, which doth heat, dry, provoke ſweat, and repell putrefaction, adding thereto alſo vinegar, that by the ſubtlety thereof, it may pierce the better, and withſtand the putrefaction. This is the deſcription of the unguent.

An ointment to draw them forth when as they appear too ſlowly.

Take of Hogs-greace, one pound, boyle it a little with the leaves of Sage, Time, Roſemary, of each halfe an handfull, ſtraine it, and in the ſtraining extinguiſh five ounces of Quick-ſilver, which hath bin firſt boyled in vinegar with the forementioned herbs; of *Sal Nitrum*, three drammes; the yelks of three egges boyled untill they be hard; of Treacle and Mithridate, of each halfe an ounce; of Venice Turpentine, oyle of Scorpions and Bayes, of each three ounces; incorporate them altogether in a morter, and make thereof an unguent, wherewith annoint the patients arme-holes and groines, avoyding the parts that belong to the head, breaſt and backbone: then let him bee laid in his bed and covered warme, and let him ſweat there for the ſpace of two houres, and then let his body bee wiped and cleanſed, and if it may be let him be laid in another bed, and there let him be refreſhed with the broth of the decoction of a Capon, rear egges, and with ſuch like meats of good juice that are eaſie to be concocted and digeſted; let him be anointed the ſecond and third day, unleſſe the ſpots appeare before.

If the patient fluxe at the mouth, it muſt not bee ſtopped: when the ſpots and puſtles doe all appeare, and the patient hath made an end of ſweating, it ſhall be convenient to uſe diureticke medicines, for by theſe the remnant of the matter of the ſpots, which happely could not all breath forth, may eaſily be purged and avoyded by urine.

If any noble or gentlemen refuſe to be anointed with this unguent, let them be encloſed in the body of a Mule or Horſe that is newly killed, and when that is cold, let them bee layed in another, untill the puſtles and eruptions doe breake forth, being drawne by that naturall heat. For ſo *Mathiolus* writeth that *Valentinus*, the ſonne of Pope *Alexander* the ſixt, was delivered from the danger of moſt deadly poyſon which he had drunke.

In proœm. lib. 6 Dioſc.

CHAP. XXX.

Of a peſtilent Bubo, *or Plague-ſore.*

What a peſtilent *Bubo* is.

A Peſtilent *Bubo* is a tumor at the beginning long and moveable, and in the ſtate, and full perfection copped, and with a ſharp head, unmoveable and fixed deepely in the glandules, or kernells; by which the braine exonerates it ſelfe of the venemous and peſtiferous matter into the kernells that are behind the eares, and in the neck: the heart, into thoſe that are in the arm-holes; and the liver, into thoſe that are in the groine; that is, when all the matter is groſſe and clammy, ſo that it cannot be drawn out by ſpots and puſtles breaking out on the skinne; and ſo the matter of a Carbuncle is ſharpe, and ſo fervent, that it maketh an *Eſchar* on the place where it is fixed. In the beginning, while the *Bubo* is breeding, it maketh the patient to feele, as it were, a cord or rope ſtretched in the place, or a hardened nerve with pricking pain: & ſhortly after the matter is raiſed up as it were into a knob, and by little and little it groweth bigger, and is enflamed, theſe accidents before mentioned accompanying it. If the tumour be red, and encreaſe by little and little, it is a good and ſalutary ſigne: but if it be livid or black, and come very ſlowly unto his juſt bigneſſe, it is a deadly ſigne: It is alſo a deadly ſigne if it encreaſe ſodainely, and come unto his juſt bigneſſe as it were with a ſwift violence, and as in a moment, have all the ſymptomes in the higheſt exceſſe, as paine, ſwelling and burning. Buboes or Sores appeare ſometimes of a naturall colour, like unto the skinne, and in all other things like unto an œdematous tumour, which notwithſtanding will ſodainely bring the patient to deſtruction, like thoſe that are livide and black, wherefore it is not good to truſt too much to thoſe kindes of tumours.

The ſignes of *Bubo*'s ſalutary and deadly.

CHAP. XXXI.

Of the cure of Buboes, *or Plague-ſores.*

The uſe of cupping glaſſes in curing a *Bubo*.

SO ſoon as the Bubo appeares, apply a Cupping-glaſſe with a great flame unto it, unleſſe it be that kinde of Bubo which will ſuddenly have all the accidents of burning and ſwelling in the higheſt nature; but firſt the skinne muſt be anointed with the oyle of lillies, that ſo it being made more looſe, the Cupping-glaſſe may draw the ſtronger and more powerfully; it ought to ſticke to the part for the ſpace of a quarter of an houre, & be renewed and applyed again every three quarters of an houre, for ſo at length the venom ſhall be the better drawn forth from any noble part that is weak, and the work of ſuppuration or reſolution, whichſoever nature hath aſſaied, will the better and ſooner bee abſolved and perfected: which may bee alſo done by the application of the following ointment.

A liniment.

Take of *Vnguentum Dialthæa* one ounce and a halfe; oile of Scorpions halfe an ounce; of Mithridate diſſolved in *Aqua vitæ*, halfe a dramme; this liniment will very well relaxe and looſen the skin, open the pores thereof, & ſpend forth portion of that matter which the Cupping-glaſſe hath drawne thither: in ſtead thereof mollifying fomentations may bee made, and other drawing and ſuppurating medicines, which ſhall be deſcribed hereafter.

A Veſicatory applied in a meet place below the Bubo profits them very much but not above; as for example. If the Bubo be in the throat, the Veſicatory muſt be applied unto the ſhoulder-blade on the ſame ſide; if it be in the arme-holes, it muſt be applied in the midſt of the arme, or of the ſhoulder-bone, on the inner ſide: if in the groin, in the midſt of the thigh on the inner ſide, that by the double paſſage that is open for to draw out the matter, the part wherein the venome is gathered together, may be the better exonerated.

Spurge, Crow-foot, Arſemart, Beare-foot, Briony, the middle barke of Travellers-joy, the rindes of Mullet, *Flammula* or upright Virgins-bower, are fit for raiſing bliſters. If you cannot come by thoſe ſimple medicines, you may apply this which followeth, which may be prepared at all times.

A compound veſicatory.

Take *Cantharides*, Pepper, *Euphorbium*, Pellitory of Spain, of each halfe a dram; of ſoure leaven, two drammes; of Muſtard one dramme, and a little Vinegar; the vinegar is added thereto to withhold or reſtraine the vehemency of the *Cantharides*; but in want of this medicine it ſhall ſuffice to drop ſcalding oyle or water, or a burning candle, or to lay a burning coale on the place: for ſo you may raiſe bliſters, which muſt preſently be cut away, and you muſt ſee that you keep the ulcers open & flowing as long as you can, by applying the leaves of red coleworts, Beetes, or Ivie dipped in warme water, and anointed with oyle or freſh butter. Some apply Cauteries, but Veſicatories work with more ſpeed: for before the Eſchar of the Cauteries will fall away, the patient may dye: therefore the ulcers that are made with Veſicatories will ſuffice to evacuate the peſtilent venome, becauſe that doth worke rather by its quality than its quantity. Let the abſceſſe bee fomented as is ſhewed before: and then let the medicine following, which hath vertue to draw, be applied.

Why veſicatories are better than cauteries in a peſtilent *Bubo*.

Strong drawing cataplaſmes.

Fill a great onion, being hollowed, with Treacle and the leaves of Rue, then roaſt it under the hot Embers, beat it with a little Leaven, and a little Swines greaſe, and ſo apply it warme unto the abſceſſe or ſore; let it be changed every ſixe houres. Or Take the roots of Marſh-mallowes and Lillies, of each halfe a pound; of Line, Fœnugreek, and Muſtard ſeeds, of each halfe an ounce; of Treacle one dramme; ten Figges, and as much Hogges greaſe as ſhall ſuffice: make thereof a cataplaſme according to Art. Or, take of Onions and Garlicke roaſted in the embers, of each three ounces: bruiſe them with one ounce of ſower leaven, adding thereto *Unguentum Baſilicon*, one ounce; Treacle one dramme; Mithridate halfe a dramme; of old Hogs greace one ounce; of *Cantharides* in pouder one ſcruple; of Pigeons dung two drams: beat them and mixe them together into the forme of a cataplaſme. Hereunto old Rennet is very profitable, for it is hot, and therfore attractive, being mixed with old Leaven and *Baſilicon*: you ought to uſe theſe untill the abſceſſe be growne unto its full ripeneſſe and bigneſſe; but if preſently after the beginning there bee great inflammation, with ſharpe paine, as it often happeneth, eſpecially when the abſceſſes be of the kinde of Carbuncles, wee muſt abſtaine from thoſe remedies that are hot and attractive, and alſo from thoſe that are very emplaſticke and clammy; becauſe they doe altogether cloſe the pores of the skin, or becauſe they reſolve the thinner part of the collected matter, which if it might remain, would bring the other ſooner to ſuppuration: or elſe becauſe they may perchance draw more quantity of the hot matter than the part can beare, whereof commeth rather corruption than maturation: and laſt of all becauſe they encreaſe the feaver and pain, which inferreth danger of a convulſion or mortall Gangrene. Therefore in ſuch a caſe it is beſt to uſe cold and temperate locall medicines, as the leaves of Henbane and Sorrell roaſted under the coales, *Galens* pultis, and ſuch like.

Againſt ſuch as cut away plague ſores.

There are many that for feare of death, have with their owne hands pulled away the *Bubo* with a paire of Smithes Pincers: others have digged the fleſh round about it, and ſo gotten it wholly out. And to conclude others have become ſo mad, that they have thruſt an hot iron into it with their owne hand, that the venome might have a paſſage forth: of all which I doe not allow one; for ſuch abſceſſes doe not come from without, as the bitings of virulent beaſts, but from within, and moreover becauſe pain is by theſe means encreaſed, and the humour is made more maligne and fierce. Therefore I think it ſufficient to uſe medicines that relaxe, open the pores of the skinne, and digeſt portion of the venome by tranſpiration, as are theſe that follow. Take the roots of Marſh-mallowes and Lillies, of each ſixe ounces; of Chamomill and Melilote flowers, of each halfe a handfull; of Linſeeds halfe an ounce; of the leaves of Rue halfe a handfull: boyle them and ſtraine them, dip ſponges in the ſtraining, and therewith let the tumour bee fomented a long time. Or, Take the crum of hot bread, and ſprinkle it with Treacle-water, or with *aqua vitæ*, and Cowes milk or Goates milke, and the yolks of three egges, put them all one ſtupes or flaxe, and apply them warme unto the place. Or, Take of ſoure Rie leaven foure ounces; of *Baſilicon* two ounces; three yolkes of egges; oyle of Lillies two ounces; Treacle one dram: let it be received on ſtupes, and applyed in like manner. Or, Take of *Diachylon* and *Baſilicon*, of each two ounces; oyle of Lillies one ounce and an halfe: let them be melted and mixed together, and let it be applyed as is aboveſaid. When you ſee, feele and know, according to reaſon, that the *Bubo* is come to perfect ſuppuration, it muſt be opened with an inciſion knife, or an actuall or potentiall Cautery, but it is beſt to be done with a potentiall Cautery, unleſſe that happely there be great inflammation, becauſe it doth draw the venome from beneath unto the ſuperficiall parts, and maketh a larger orifice for the matter that is contained therein: neither muſt it be looked for, that nature ſhould open it of her ſelfe, for then it were danger that leſt while nature doth worke ſlowly, a venemous vapour ſhould bee ſtirred up, which ſtriking the heart by the arteries, the braine by the nerves, and the liver by the veines, ſhould cauſe a new increaſe of the venemous infection. For feare whereof there be ſome that will not expect the perfect maturation and ſuppuration, but as it were in the midſt of the crudity and maturity will make an orifice for it to paſſe forth at: yet if it be done before the tumour be at his perfect maturity, paine, a Feaver, and all accidents are ſtirred up and enraged, whereof commeth a maligne ulcer that often degenerats into a Gangrene. For the moſt part about the tenth or eleventh day the work of ſuppuration ſeemeth perfected and finiſhed; but it may be ſooner or later by reaſon of the application of medicines, the condition of the matter, and ſtate of the part: when the matter commeth forth, you muſt yet uſe ſuppurative and mollifying medicines, to maturate the remains thereof; in the mean while cleanſing the ulcer by putting mundificatives into it, as we ſhall declare in the cure of Carbuncles. But if the tumour ſeeme to ſinke in or hide it ſelfe again, it muſt be revoked and procured to come forth againe, by applying of Cupping-glaſſes with ſcarification, and with ſharpe medicines, yea, and with Cauteries both actuall and potentiall.

A digeſtive fomentation.

An anodine Cataplaſme.

Why it is beſt to open a Plague-ſore with a potentiall cautery.

How to draw forth a ſore that ſeems to goe in againe.

When the Cauteries are applyed, it ſhall be very good to apply a veſicatory a little below it, that there may be ſome paſſage open for the venome while the Eſchar is in falling away. For ſo they that are troubled with the French Pocks, ſo long as they have open and flowing ulcers, ſo long are they voyd of any paine that is worth the ſpeaking of; which ulcers being cloſed and cicatrized, they doe preſently complain of great paine. If you ſuſpect that the *Bubo* is more maligne by reaſon that it is of a greene, or blacke and inflamed colour, as are thoſe that come of a melancholy humour by aduſtion, turned into a groſſe and rebellious melancholy humour, ſo that by the more copious influxe thereof into the part, there is danger of a gangrene and mortification; then the places about the abſceſſe muſt bee armed with repercuſſives, but not the abſceſſe it ſelfe: and this may be the forme of the repercuſſives: Take of the juice of houſe-leeke, Purſlaine, Sorrell, Night-ſhade, of each two ounces, of Vinegar one ounce, the whites of three egges, of oyle of Roſes and water-Lillies, of each two ounces and a halfe: ſtirre them together, and apply it about the *Bubo*, and renew it often: or boyle a Pomgranate in vinegar, beat it with *Unguentum Roſatum*, or *Populeon* newly made, and apply it as is aforeſaid. If theſe things doe not ſtop the influxe of other humours, the abſceſſe it ſelfe and the places about it muſt bee ſcarified round about, if the part will permit it; that the part exonerated of portion of the venome may not ſtand in danger of the extinction of the proper and naturall heat, by the greater quantity and malignity of the humours that flow unto it. In ſcarrifying you muſt have care of the great veſſels, for feare of an irrepugnable fluxe of bloud, which in this caſe is very hard to bee ſtayed or reſiſted; both becauſe the part it ſelfe is greatly inflamed, and the humour very fierce; for the expulſion whereof, nature, carefull for the preſervation of the part and all the body

When repercuſſives may be applyed.

Why too much bleeding is to be feared.

beſides, ſeemeth to labour and worke. But yet you muſt ſuffer ſo much of the bloud & humour to flow out as the patient is able to abide without the loſſe of his ſtrength. Moreover, you may ſpend forth the ſuperfluous portion of the malignity, with relaxing, mollifying and reſolving fomentations: as, Take the roots of Marſh-Mallowes, Lillies and Elicampaine, of each one pound, of Linſeeds and Fænugreek, of each one ounce, of Fennell-ſeeds and Aniſe-ſeeds, of each halfe an ounce, of the leaves of Rue, Sage, Roſemary, of each one handfull, of Chamomill and Melilote flowers, of each three handfuls; boyle them all together, and make thereof a decoction for a fomentation; uſe it with a ſpunge according to Art. Alſo after the aforeſaid ſcarification, wee may put Hens, or Turkies that lay egs (which therefore have their fundaments more wide and open, and for the ſame purpoſe put a little ſalt into their fundaments) upon the ſharpe top of the *Bubo*, that by ſhutting their bils at ſeverall times they may draw and ſuck the venome into their bodies, farre more ſtrongly and better than cupping-glaſſes, becauſe they are endued with a naturall property againſt poyſon, for they eat and concoct Toads, Efts, and ſuch like virulent beaſts: when one hen is killed with the poyſon that ſhe hath drawne into her body, you muſt apply another, and then the third, fourth, fift and ſixt within the ſpace of half an houre. There be ſome that will rather cut them, or elſe uſe whelps cut aſunder in the midſt, and applyed warme unto the place, that by the heate of the creature that is yet ſcarce dead, portion of the venome may be diſſipated and exhaled. But if nevertheleſſe there be any feare of a Gangrene at hand, you muſt cut the fleſh with a deeper ſcarification, not onely avoyding the greater veſſels, but alſo the nerves, for feare of convulſion: and after the ſcarification and a ſufficient flux of bloud, you muſt waſh it with *Ægyptiacum*, Treacle and Mithridate diſſolved in ſea-water, *Aqua vitæ* and Vinegar. For ſuch a lotion hath vertue to ſtay putrefaction, repell the venome, and prohibite the bloud from concretion: but if the Gangrene cannot be avoyded ſo, cauteries may be applied to the part: eſpecially actual, becauſe they do more effectually repel the force of the poiſon, & ſtrengthen the part. Preſently after the impreſſion of the hot iron, the eſchar muſt bee cut away even unto the quicke fleſh, that the venemous vapours and the humours may have a free paſſage forth, for it is not to bee looked for that they will come forth of themſelves.

Liniments to haſten the falling away of the Eſchar.

With theſe inunctions they are wont to haſten the falling away of the Eſchar. Take of the mucilage of Marſh-mallowes and Linſeeds, of each two ounces, freſh butter or Hogs-greaſe one ounce, the yolks of three egges, incorporate them together, and make thereof an ointment: butter, Swines greaſe, oyle of Roſes, with the yolks of egges, performe the ſelfe ſame thing. When the Eſchar is fallen away, we muſt uſe digeſtives. As take of the juice of Plantaine, water-Bettony, and Smallage, of each three ounces, hony of Roſes foure ounces, Venice Turpentine five ounces, Barly-flower three drams, Aloes two drams, oyle of Roſes foure ounces, Treacle halfe a dram, make a mundificative according to Art. Or, Take Venice Turpentine foure ounces, Syrupe of dryed Roſes and Wormewood, of each one ounce, of the powder of Aloes, Maſtick, Myrrhe, Barly-flower, of each one dram, of Mithridate halfe an ounce, incorporate them together.

Againſt eating ulcers.

This unguent that followeth is very meet for putrefied and corroding ulcers: Take red Orpiment one ounce, of unquenched Lime, burnt Alome, Pomgranate pills, of each ſixe drams, of *Olibanum*, Galls, of each two drams; of Waxe and Oile as much as ſhall ſuffice, make thereof an unguent. This doth mundifie ſtrongly, conſume putrefied fleſh, and dry up virulent humidities that engender Gangrenes.

The praiſe of *Ægyptiacum*.

But there is not a more excellent unguent than *Ægyptiacum* encreaſed in ſtrength, for beſides many other vertues that it hath, it doth conſume and waſte the proud fleſh, for there is neither oyle nor waxe that goeth into the compoſition thereof, with which things the vertue of ſharpe medicines convenient for ſuch ulcers, is delayed, and as it were dulled and hindered from their perfect operation ſo long as the ulcer is kept open. There have bin many that being diſeaſed with this diſeaſe, have had much matter & venemous filth come out at their abſceſſes, ſo that it ſeemed ſufficient, and they have bin thought wel recovered, yet have they dyed ſuddenly. In the mean while when theſe things are in doing, cordial medicines are not to be omitted to ſtrengthen the heart. And purgations muſt be renewed at certaine ſeaſons, that nature may be every way unloaded of the burthen of the venenate humors.

CHAP. XXXII.

Of the Nature, Cauſes and Signes of a peſtilent Carbuncle.

A Peſtilent Carbuncle is a ſmall tumour, or rather a maligne puſtle, hot and raging, conſiſting of bloud vitiated by the corruption of the proper ſubſtance. It often commeth to paſſe through the occaſion of this untameable malignity, that the Carbuncle cannot be governed or contained within the dominion of nature. In the beginning it is ſcarce ſo big as a ſeed or grain of Millet or a Peaſe, ſticking firmly unto the part and immoveable, ſo that the skinne cannot be pulled from the fleſh; but ſhortly after it encreaſeth like unto a *Bubo* unto a round and ſharpe head, with great heat, pricking paine, as if it were with needles, burning and intolerable, eſpecially a little before night, and while the meate is in concocting, more than when it is perfectly concocted. In the midſt thereof appeareth a bladder puffed up and filled with ſanious matter. If you cut this bladder, you ſhall finde the fleſh under it parched, burned and blacke, as if there had bin a burning cole layed there, whereby it ſeemeth that it took the name of Carbuncle; but the fleſh that is about the place is like a Rainebow, of divers colours, as red, darke, green, purple, livid, and black; but yet alwaies with a ſhining blackneſſe, like unto ſtone pitch, or like unto the true precious ſtone which they call a Carbuncle, whereof ſome alſo ſay it tooke the name. Some call it a Naile, becauſe it inferreth like paine as a naile driven into the fleſh. There are many Carbuncles which take their beginning with a cruſty ulcer without a puſtle, like to the burning of a hot iron: and theſe are of a blacke colour, they encreaſe quickly, according to the condition of the matter whereof they are made. All peſtilent Carbuncles have a Feaver joyned with them, and the grieved part ſeemeth to be ſo heavie, as if it were covered or preſſed with lead tyed hard with a ligature: there commeth mortall ſwounings, faintings, toſſing, turning, idle-talking, raging, gangrenes and mortifications, not onely to the part, but alſo to the whole bodie, by reaſon (as I thinke) of the oppreſſion of the ſpirits of the part, & the ſuffocation of the naturall heat, as we ſee alſo in many that have a peſtilent *Bubo*. For a *Bubo* and Carbuncle are tumours of a near affinity, ſo that the one doth ſcarce come without the other, conſiſting of one kinde of matter, unleſſe that which maketh the *Bubo* is more groſſe and clammy, and that which cauſeth the Carbuncle more ſharpe, burning and raging, by reaſon of its greater ſubtlety, ſo that it maketh an Eſchar on the place where it is, as we noted before.

What a Carbuncle is.

The ſignes of a Carbuncle.

Whence ſo called.

Symptomes of Carbuncles.

How the matter of a *Bubo* & Carbuncle differ.

CHAP. XXXIII.

What Prognoſticks may bee made in peſtilent Buboes and Carbuncles.

SOme having the Peſtilence have but one Carbuncle, and ſome more in divers parts of their body, and in many it happeneth that they have the *Bubo* and Carbuncle before they have any Feaver; which giveth better hope of health, if there be no other maligne accident therewith: for it is a ſigne that nature is the victor, and hath gotten the upper hand, which excluded the peſtilent venome before it could come to aſſault the heart. But if a Carbuncle and *Bubo* come after the Feaver, it is mortall; for it is a token that the heart is affected, moved and incenſed with the furious rage of the venome; whereof preſently commeth a feaveriſh heat or burning, and corruption of the humours, ſent as it were from the center unto the ſuperficies of the body. It is a good ſigne when the patients minde is not troubled from the beginning untill the ſeventh day; but when the *Bubo* or Carbuncle ſinketh downe againe ſhortly after that it is riſen, it is a mortall ſigne, eſpecially if ill accidents follow it. If after they are brought to ſuppuration they preſently waxe dry without any reaſon thereof, it is an ill ſigne: Thoſe Carbuncles that are generated of bloud have a greater Eſchar than thoſe that are made

Why it is deadly to have a ſore come after the Feaver.

made of choler, becauſe that bloud is of a more groſſe conſiſtence, and therefore occupieth a greater roome in the fleſh: contrariwiſe, a cholerick humour is more ſmall in quantity and thinne, and it taketh little roome in the upper part of the fleſh onely, as you may ſee in an *Eryſipelas*. And I have ſeene Carbuncles whoſe Eſchars were as broad and as large as halfe the backe: alſo I have ſeene others, which going up by the ſhoulders to the throat, did ſo eate away the fleſh that was under them, that the rough artery or wind-pipe might be ſeen bare, when the Eſchar was fallen away: I had once a Carbuncle which was in the midſt of my belly, ſo that when the Eſchar was fallen away, I might very plainly ſee the *Piritonæum* or Rim: & the cicatrice that remaineth is as broad as my hand: but they doe not ſpread themſelves ſo far without the great danger or death of the patient. There are alſo ſome Carbuncles which beginning at the parts under the chin, diſperſe themſelves by little & little unto the pattell bones, and ſo ſtrangle the patient. So in many, the *Buboes* in the groin ariſe above a great part of the muſcles of the *Epigaſtrium*. Truly of thoſe abſceſſes that are ſo large & great in quantity, & ſo terrible to be ſeen, there is great danger of death to the patient, or at leaſt to the grieved part. For after the conſolidation, the part remaineth as if it were leprous, which aboliſheth the action of the part, as I have ſeene in many. Oftentimes alſo the corruption of the matter is ſo great, that the fleſh leaveth the bones bare: but Carbuncles often leave the joints and ligaments quite reſolved through the occaſion of the moiſture that is ſoaked & ſunk in unto them; for they often caſt out putrefied & virulent ſanious matter: whereby eating and creeping ulcers are bred, many bliſters & puſtles ariſing up in the parts round about it; which ſhortly breaking into one, make a great ulcer. Theſe come very ſeldome and ſlowly unto ſuppuration, or at leaſt to caſt out laudible matter, eſpecially if thy have their original of choler, becauſe the matter is ſooner burned with heat, than ſuppurated. Therefore then, if they can bee brought to ſuppuration by no medicines, if the tumour ſtill remaine blacke, if when they are opened nothing at all, or elſe a very little ſharpe moiſture doth come forth, they are altogether mortall: and there is ſcarce one of a thouſand who hath theſe accidents that recovereth health: diſperſed ſmall bliſters, comming of vapours ſtirred up by the matter that is under the skinne, and are there ſtayed and kept from paſſage forth, doe not neceſſarily fore-ſhew death in Carbuncles. But if the part be ſwolne or puffed up, if it be of a green or black colour, and if it feele neither pricking nor burning, it is a ſigne of a mortall Gangrene. *Buboes* or Carbuncles ſeldome or never come without a Feaver: but the Feaver is more vehement when they are in the emunctories, or nervous parts, than when they are in the fleſhy parts, yet it is leſſe, and all Symptomes are leſſe, and more tolerable in a man that is ſtrong and of a good temperature: Carbuncles not onely affect the outward, but alſo the inward parts, and oftentimes both together. If the heart be vexed in ſuch ſort with a Carbuncle that nothing thereof appeareth forth on the ſuperficiall parts, all hope of life is paſt, and thoſe dye ſuddenly, eating, drinking or walking, and not thinking any thing of death. If the Carbuncle be in the middriffe or lungs, they are ſoon ſuffocated: If it be in the braine, the patient becommeth frantick, and ſo dyeth. If it be in the parts appointed for the paſſage of the urine, they dye of the ſuppreſſion of their water, as it happened in the Queene mothers waiting maide at the Caſtle of *Roſsilion*, of whom I ſpake before. If it be in the ſtomacke, it inferreth the accidents that are ſhewed in this hiſtory following.

Huge peſtilent Abſceſſes commonly deadly.

Deadly Carbuncles.

A hiſtory.

While I was Surgeon in the Hoſpitall of Paris, a young and ſtrong Monke of the order of St. *Victor*, being overſeer of the women that kept the ſicke people of that place, fell into a continuall Feaver very ſuddenly with his tongue blacke, dry, rough, (by reaſon of the putrefied and corrupted humours, and the vapours riſing from the whole body unto that place) and hanging out like unto an hounds, with unquenchable thirſt, often ſwouning and deſire to vomit. He had convulſions over all his body through the vehemency and malignity of the diſeaſe, and ſo hee dyed the third day: wherefore thoſe that kept the ſicke people in the Hoſpitall, thought that he had been poyſoned, for the certaine knowledge whereof the Governours of the Hoſpitall commanded his body to be opened.

I therefore calling to mee a Phyſician and Surgeon, wee found in the bottome of his ſtomack a print or impreſſion, as if it had been made with an hot Iron or potentiall Cauterie, with an Eſchar or cruſt as broad as ones naile, all the reſt of his ſtomack was greatly contracted and ſhrunke up together, and as it were horny; which wee conſidering, and eſpecially the Eſchar which was deepe in the ſubſtance of the ſtomacke, we all ſaid with one voice that he was poyſoned with Sublimate or Arſenick. But behold while I was ſowing up his belly, I perceived many blacke ſpots diſperſed diverſly throughout the skin: then I asked my company what they thought of thoſe ſpots; truely (ſaid I) it ſeemeth unto me that they are like unto the purple ſpots or markes that are in the peſtilence. The Phyſician and the Chirurgion denied it, and ſaid that they were the bitings of fleas. But I perſwaded them to conſider the number of them over all the whole body, and alſo their great depth and depreſſion into the fleſh; for when we had thruſt needles deep into the fleſh in the middeſt of them, and ſo cut away the fleſh about the needle, we found the fleſh about the needle to be blacke: moreover his noſtrils, nailes and eares were livid, and all the conſtitution of his body was contrary, and far unlike to the bodies of thoſe that died of other ſickneſſes or diſeaſes. Alſo it was credibly reported unto us by thoſe that kept him, that his face was ſo altered a little before he died, that his familiar friends could hardly know him. Wee perſwaded by theſe proofes, revoked our former opinion and ſentence, and made a certificate to bee ſent unto the Governours and Maſters of the Hoſpitall, ſetting our hands and ſeales unto it, to certifie them that hee died of a peſtilent Carbuncle.

How to diſtinguiſh purple ſpots from flea-bitings.

CHAP. XXXIIII.

Of the cure of a peſtilent Carbuncle.

BY the forenamed ſignes of a peſtilent Carbuncle, and eſpecially by the bitterneſſe of the paine, malignity of the venemous matter, and by the burning Feaver that is therewithall annexed, I think it manifeſt, that very hot, emplaſtick, and drawing medicines ſhould not bee applyed to this kind of tumour; becauſe they prohibite or hinder the exhalation, or waſting forth of the venenate malignity; becauſe that by ſtopping the pores of the skinne, they increaſe and cauſe a greater heat in the part than there was before. Therefore it is better to uſe reſolving medicines, which may aſſwage heate, and reſolve the pores of the skinne. Therefore firſt the place muſt be fomented with water and oyle mixed together, wherein a little Treacle hath beene diſſolved, leaving thereon ſtupes wet therein: you may alſo uſe the decoction of Mallowes, the roots of Lillies, Linſeeds, Figges, with oile of *Hypericon*, for to make the skinne thin, and to draw forth the matter; and the day following you muſt apply the Cataplaſme following.

Why Emplaſtick, very hot, and great drawers are not good for a carbuncle.

Take the leaves of Sorrell and Henbane, roſt them under the hot aſhes; afterwards beate them with foure yolks of egges, two drams of Treacle, oyle of Lillies, three ounces, Barly-meale as much as ſhall ſuffice: make thereof a Cataplaſme in the form of a liquid pultis; this aſſwageth heat, and furthereth ſuppuration. Or, Take the roots of Marſh-mallowes and Lillies, of each foure ounces, Linſeeds halfe an ounce, boyle them, beat them, and then ſtraine them through a ſearſe, adding thereto of freſh butter one ounce and an halfe, of Mithridate one dramme, of Barly-meale as much as ſhall ſuffice: make thereof a Cataplaſme according to Art: thoſe Cataplaſmes that follow are moſt effectuall to draw the venemous matter forth, and to make a perfect ſuppuration, eſpecially when the fluxe of the matter is not ſo great, but that the part may beare it. Take the roots of white Lillies, Onions, Leaven, of each halfe an ounce; Muſtard-ſeeds, Pidgeons dung, Sope, of each one dram; ſixe ſnailes in their ſhels; of fine Sugar, Treacle and Mithridate, of each half a dram; beate them all together, and incorporate them with the yolks of egs, make therof a Cataplaſme, & apply it warm. Or, Take the yolkes of ſixe egs; of ſalt poudered one ounce; of oyle of Lillies and Treacle, of each halfe a dramme; Barly-meale as much as ſhall ſuffice: make there-

A Cataplaſme for a peſtilent Carbuncle.

Another.

Other Cataplaſmes.

The effect of Scabious againſt a peſtilent Carbuncle.

A Radiſh root drawes out the venome powerfully.

The top of a Carbuncle when, why and with what to be burned.

The falling of the Eſchar promiſeth health.

A twofold indication.

of a Cataplaſme. Take of ordinary ***Diachylon*** foure ounces; of ***Unguentum Baſilicon*** two ounces; oyle of Violets halfe an ounce: make thereof a medicine. Many ancient Profeſſors greatly commend Scabious ground or brayed betweene two ſtones, and mixed with old hogs greaſe, the yolkes of egs, and a little ſalt; for it will cauſe ſuppuration in Carbuncles: alſo an egge mixed with Barly-meale, and oyle of Violets doth mitigate paine and ſuppurate. A Radiſh root cut in ſlices, and ſo the ſlices laid one after one unto a Carbuncle or peſtilent tumour, doth mightily draw out the poyſon. The juice of Colts foote doth extinguiſh the heat of Carbuncles: the herbe called Divels-bit being bruiſed, worketh the like effect: I have often uſed the medicine following unto the heat of Carbuncles, with very good ſucceſſe; it doth alſo aſſwage paine and cauſe ſuppuration. Take of the ſoot ſcraped from a chimny foure ounces, of common ſalt two ounces, beate them into ſmall powder, adding thereto the yolkes of two egges, and ſtirre them well together untill it come to have the conſiſtence of a pultis, and let it bee applyed warme unto the Carbuncle. In the beginning the point or head of the Carbuncle muſt bee burned, if it bee blacke, by dropping thereinto ſcalding hot oyle, or ***Aqua fortis***: for by ſuch a burning the venome is ſuffocated as touched by lightening, and the paine is much leſſened, as I have proved oftentimes: neither is it to bee feared leſt that this burning ſhould bee too painfull, for it toucheth nothing but the point of the Carbuncle, which by reaſon of the Eſchar that is there, is voyd of ſenſe. After this burning, you muſt goe forward with the former deſcribed medicines, untill the Eſchar ſeemeth to ſeparate it ſelfe from the fleſh round about it, which is a token of the patients recovery, for it ſignifieth that nature is ſtrong and able to reſiſt the poyſon. After the fall of the Eſchar you muſt uſe gentle mundificatives, as thoſe which we have preſcribed in a peſtilent *Bubo*, not omitting ſometimes the uſe of ſuppurative and mollifying medicines, that while the groſſe matter is cleanſed, that which is as yet crude may bee brought to ſuppuration; for then the indication is twofold, the one to ſuppurate that which remaines as yet crude and raw in the part, and the other to cleanſe that which remaines concocted and perfectly digeſted in the ulcer.

CHAP. XXXV.

Of the itching and inflammation happening in peſtilent ulcers, and how to cicatrize them.

Why the adjacent parts are troubled with itching.

A fomentation for this itch.

Why theſe ulcers are hard to be cicatrized.

Two ſorts of Epuloticks.

THE parts adjoyning to a peſtilent ulcer oft-times are ſuperficially excoriated by reaſon of ulcerous puſtles, which here and there with burning and great itching pricke and vellicate the part. The cauſe may happen either externally or internally; internally by a thin and biting *ſanies*, which ſweating from the ulcer, moyſtens the neighbouring parts. But externally by the conſtipation of the pores of the ſkinne induced by the continuall application of medicines. To remedy this, the place muſt bee fomented with diſcuſſing and relaxing things, as *aqua fortis*, which the Gold-ſmithes have uſed for ſeparating of metalls, alome water, the water of Lime, Brine and the like. But ulcers left by Carbuncles and peſtilent *Buboes*, are difficultly cicatrized by reaſon of the corroding *ſanies*, proceeding from the cholericke, or phlegmaticke and ſalt bloud, which being in fault by the corruption of the whole ſubſtance cauſeth the abſceſſe. Beſides, ſuch ulcers are commonly round, and therefore more hard to be cicatrized, for that the quitture hath no free paſſage forth; ſo the *ſanies*, of its owne nature acride and corroding, doth by delay acquire greater acrimony and introſitie, ſo that by its burning touch diſſolving the adjacent fleſh, it hinders the conjunction and unition of the lips of the ulcer; but in the interim the lips of the ulcer become callous, which, unleſſe they be helped by cutting, or eating medicines, the ulcer cannot be healed, for that by their denſity they hinder the ſweating out of a ſufficient quantity of the dewy glew to heale up the ulcer. Now the ulcer being plained and brought equall to the other fleſh, we muſt uſe Epuloticks, that is, ſuch things as have a faculty to cicatrize ulcers by condenſing and hardening the ſurface of the fleſh, of theſe there are two kinds; for ſome without much biting bind and dry, ſuch are pomgranate pils, oake barke, *Tutia*, litharge, burnt bones, ſcailes of braſſe, galls, cypreſſe nuts, *Minium*, antimony, bole armenicke, the burnt and waſhed ſhels of oiſters, Lime nine times waſhed, and many metalline things. Others are next to theſe, by which proud fleſh is conſumed, but ſuch muſt be ſparingly uſed: of this kind is waſhed Vitrioll, burnt Alome, which excelleth other Epuloticks, by reaſon of the excellent drying and aſtringent faculty conſolidating the fleſh, which by being moiſtened by an excrementitious humour, growes lanke. For that the ſcarre which is made, is commonly unſightly in this kind of ulcers, as red, livide, blacke, ſwolne, rough, by reaſon of the great aduſtion imprinted in the part, as by a burning coale, therefore I have thought good here to ſet down ſome means by which this deformity may be corrected or amended. If the ſcarre be too big or high, it ſhall be plained by making convenient ligation and ſtrait binding to the part a plate of lead rubbed over with quickſilver; but you may whiten it by anointing it with Lime nine times waſhed (that ſo it may bee more gentle and loſe the acrimony) and incorporated with oile of Roſes. Some take two pound of Tartar or Argole, burne it, and then powder it, put it in a cloth, and ſo let it hang in a moyſt vault or cellar, and ſet a veſſell under it to receive the dropping liquor, which is good to be rubbed for a good ſpace, upon the ſcarre. The ſame faculty is thought to be in that moyſture of egs which ſweats through the ſhel, whileſt they are roſted at the coals; as alſo *unguent. citrinum*, and *Emplaſt. de ceruſſa* newly made: The three following compoſitions are much approved. ℞. *Axungiæ ſuillæ nonies lotæ in aceto acerrimo* ℥iv. *cinab. ſucci titri, & alum. uſti, an.* ℥ß. *ſulphur. vivi ignem haud experti,* ʒii. *caph.* ℈ii. *fiat pulvis*; then let them all be incorporated together, and make an ointment; it attenuates the skin and cleanſeth ſpots. ℞. *olei hyoſ. olei ſemin. cucurb. an.* ℥i. *olei tartar.* ʒß. *ceræ alb.* ʒiii. *liquefiant ſimul lento igne, deinde adde ſpermat. ceti* ʒvi. *removeantur predicta ab igne donec infrigid. poſtea adde troch. alb. Rhaſis pul.* ʒiii. *caph.* ʒi. *tandem cum mali citri ſucco omnia diligenter commiſce, fiat linimentum.* Or elſe, ℞. *rad. ſerpent.* ℥i. *bulliat in aq. com.* ℔i. *ad dimid. deinde adde ſulph. vivi ignem non experti, & alum. crudi, pulveriſ. an.* ʒiß. *colent. predict. & addatur caph.* ʒi. *ſucci hyoſcyami* ʒiß. Let this medicine be kept in a lead or glaſſe veſſel, and when you would uſe it, dip linnen clothes therein, and lay them to the part. You may alſo uſe theſe medicines againſt the redneſſe of the face, and you may fetch them off in the morning by waſhing the face with warme water and bran.

Remedies againſt the deformity of ſcarres.

Ointments to attenuate and take away ſcars.

CHAP. XXXVI.

Of ſundry kinds of Evacuations, and firſt of ſweating and vomiting.

THe peſtilent malignity is not onely evacuated and ſent forth by the eruption of puſtles and ſpots, but alſo by ſweat, vomit, bleeding at noſe, at the hæmorrhoids, by the courſes, a fluxe of the belly, and other wayes, ſo that nature by every kind of excretion may be freed from the deadly poyſon, eſpecially that which is not as yet arrived at the heart. But chiefe regard muſt be had to the inclination of nature, and wee muſt attend what way it chiefly aimes at, and what kind of excretion it affects. Yet ſuch evacuations are not alwayes criticall, but uſually ſymptomaticall, for that oft-times nature is ſo irritated by the untameable malignity of the matter, that it can no way digeſt it, but is forced by any meanes to ſend it away crude as it is. Wherefore if nature may ſeeme by the moyſtneſſe of the skin, the ſuppreſſion of urine, & other ſignes to affect a criſis and excretion by ſweat, you then ſhall procure it by the formerly mentioned meanes. It is delivered by the Ancients that all ſweats in acute diſeaſes are ſalutary, which happen upon a Criticall day, which are univerſall and hot, and ſignified before the criticall day. But in this rapid and deadly diſeaſe of the Plague, wee muſt not expect a *Criſis*, but as ſoone as wee can, and by what meanes wee may to free nature from ſo dire and potent an enemy.

Why the peſtilent malignity is not caried away by one way, but by many.

We muſt have chiefe regard to the motion of nature.

Signes of future ſweat.

A *Criſis* muſt not be expected in the Plague.

But

How to procure vomit.

But oft times the tough and groſſe excrementitious humours may bee purged by vomit, which could not be evacuated by ſtrong purges. Therefore alſo by this manner of excretion may we hope for the excluſion of the peſtilent venome, if there bee nothing which may hinder; and nature by frequent nauſeouſneſſe may ſeem to affect this way: the endeavour thereof ſhall be helped by giving ſome halfe a pint of warm water to be drunke with foure ounces of common oyle, an ounce of vinegar, and a little juice of raddiſh, after the taking of the potion it is fit to thruſt into the throate a gooſe quill dipped in the ſame oile, or elſe a branch of Roſemary, or elſe by thruſting in the fingers ſo to procure vomit; alſo a potion of eight ounces of the mucilaginous water of the decoction of Line ſeeds will procure vomit. Or elſe, ℞. *rad. raph. in taleol. ſect. vel ſem. ejus, & ſem. antriplicis, an.* ʒ iii. *bulliant in aqua com. quod ſufficit pro doſi, in colatura diſſolve oxym. & ſyr. acet. an.* ℥ß. *exhibeatur potio larga & tepida.* Or elſe, ℞. *oxym. Gal.* ℥ vi. *ol. com.* ℥ ii. *paretur potio tepid.*

Why vomit muſt not be forced.

But nature muſt not be forc't, unleſſe of its own accord it undertake this motion; for forced and violent vomiting, diſtends the nervous fibers of the ventricle, dejects the ſtrength, breaks the veſſels of the Lungs, whence proceeds a deadly ſpitting of blood. Wherefore if the ſtomack ſhall trouble it ſelfe with a vain and hurtfull deſire to vomit, it ſhall rather be ſtrengthened with bagges of roſes, worm wood and Saunders, uſing inwardly the juice of Quinces and Berberies, and brothes made for the ſame purpoſe.

Chap. XXXVII.

Of ſpitting, Salivation, Sneeſing, Belching, Hicketting, and making of Water.

The effect of ſpitting in peſtilent diſeaſes.

What long evacuations may be made by ſpitting and ſalivation, you may learne by the example of ſuch as have a pluriſie, for the matter of the pluriſie being turned into *pus*, the purulent matter ſuckt up by the rare and ſpongeous ſubſtance of the lungs, and thence drawn into the *Aſpera Arteria*, is laſtly caſt out by the mouth.

The force of ſalivation.

There is none ignorant, how much ſuch as have the *Lues venerea* are helped by ſalivation and ſpitting. But theſe ſhall be procured by Maſticatories of the roots of *Ireos*, Pellitory of Spaine, Maſtick, and the like; the mucilage of Line ſeeds held in the mouth will worke the ſame effect.

The force of ſneeſing.

That ſuch as have a moiſt braine may expell their ſuperfluous humours by ſneeſing and blowing their noſes, the braine by the ſtrength of the expulſive faculty, being ſtirred up to the excluſion of that which is harmefull, may be knowne by the example of old people and children which are daily purged by their noſes; the braine is ſtirred up to both kindes of excretion from cauſes either internall or externall: from the internall, as by a phlegmaticke and vaporous matter, which conteined in the braine, offends it; externally, as by receiving the beames of the ſunne in the noſtrils, or by tickling them with a feather, or blowing into them the powder of Hellebore, *Euphorbium*, *Pyrethrum*, Muſtard ſeed, and the like ſternutamentories. For then the braine is ſtraitened by its owne expulſive faculty, to the excretion of that which is troublous unto it. Sneeſing breaketh forth with noiſe, for that the matter paſſeth through ſtraits, to wit, by the ſtraining paſſages of the *Os cribroſum*, which is ſeated at the roots of the noſtrills. It is not fit to cauſe ſneeſing in a body very plethorick, unleſſe you have firſt premiſed generall medicines, leſt the humours ſhould bee more powerfully drawne into the braine, and ſo cauſe an Apoplexie, *Vertigo*, or the like ſymptomes.

The commodities of belching.

By belching the flatulencies conteined in the ventricle, being the off-ſpring of crudity, or flatulent meats, are expelled, theſe by their taſte and ſmell, pleaſing, ſtinking, ſweet, bitter or tart, ſhew the condition and kinde of crudity of the humours from whence they are raiſed: now vomiting freeth the ſtomack of crudities, but the diſtemper muſt be corrected by contraries, as altering things to be preſcribed by the Phyſitian.

Hicketting is a contraction and extenſion of the nervous fibers of the ſtomack, to caſt forth ſuch things as are too contumaciouſly impact in the coates thereof; yet repletion only is not the cauſe thereof, but ſometimes inanition alſo; ſo oft times a putride vapour, from ſome other place, breaking into the ſtomacke, as from a peſtilent *Bubo*, or Carbuncle; alſo all acide and acride things, becauſe they pricke, vellicate & provoke the tunicles of the ventricle, as vinegar, ſpiced things, and the like; often & contumacious hicketting after purging, a wound or vomiting, is ill; but if a convulſion preſently happen thereon, it is deadly.

Severall remedies muſt be uſed according to the variety of the cauſes: for repletion helps that hicketing that proceeds from inanition, & evacuation that which happens by repletion: that which proceeds from a putrid and venemous vapour, is helped by Treacle and Antidotes; that which is occaſioned by acide and acrid things, is cured by the uſe of groſſe, fatty, and cold things.

The whole body purged by urine.

Now the whole body is oft times purged by urine, and by this way the feavouriſh matter is chiefly and properly accuſtomed to bee evacuated: not a few, being troubled with the *Lues venerea*, when as they could not be brought to ſalivation by unction, have bin cured by the large evacuation of urine cauſed by diuretick medicines. Diureticks wherewithall you may move urine, are formerly deſcribed in treating of the ſtone. But we muſt abſtaine from more acride diureticks, eſpecially when as inflammation is in the bladder; for otherwiſe the noxious humours are ſent to the affected part, whence there is danger of a deadly Gangrene. Therefore then it is better to uſe diverſion by ſweat.

When we ought to abſtaine from diureticks.

CHAP. XXXVIII.

Of the Menſtruall and Hæmorrhoidall purgation.

How to provoke the courſes.

NOt onely reaſon, but alſo manifold experience induceth us to beleeve that women, by the benefit of their menſtruall purgation, eſcape and are freed from great, peſtilent, and abſolutely deadly diſeaſes; wherefore it muſt bee procured by remedies, both inwardly taken, and outwardly applied: theſe may be taken inwardly with good ſucceſſe, *Caſsia lignea*, Cinamon, the barke of the root of a Mulberry, Saffron, Agricke, Nutmeg, Savine, *Diagridium*, and divers others. But if the affect require more vehement medicines, the rootes of Tithymel, Antimony, *Cantharides* (taken in ſmall quantity) move the courſes moſt powerfully; frictions and ligatures made upon the thighes and legges conduce hereto, as alſo cupping in the inner and middle part of the thighs, the opening of the vein *Saphena*, leaches applyed to the orifice of the neck of the womb, peſſaries, nodula's, glyſters, baths, fomentations made of oderiferous things, which by the fragrancy of their odor, or rather by their heat, may attenuate & cut groſſe humors, open the obſtructed orifices of the veines, ſuch are the roots of Marſh-mallowes, Orris, Parſly, Fennell, Kneholne, the leaves and floures of St. Johns Wort, *Aſparagus*, Rocket, Balme, Chervile, Mugwort, Mints, Penny-royall, Savory, Roſemary, Rue, Time, Sage, Bay berries, Broome, Ginger, Cloves, Pepper, Nutmegs, and the like; the vapour of the boyling whereof, let the woman, ſitting upon a perforated ſeat, receive by a funnell into the necke of her wombe, covering herſelfe warme on all ſides, that ſo nothing may otherwiſe breath forth. Of the ſame things may bee made bathes, as well generall as particular. Alſo peſſaries are good made after this manner. ℞. *theriac. mithrid. an.* ʒ ß. *caſtor. gum. ammoniac. an.* ʒ i. *miſce cum bombace in ſucco mercurialis tincto, fiat peſſarium.* Or elſe, ℞. *rad. petroſelin. & fænug. ſub cineribus coctas, deinde contuſas cum pul. ſtaphyſag. pyreth. croco & oleo liliorum*, ſo make a peſſary in the forme of a ſuppoſitory or nodula. Or, ℞. *pulv. myrrh. & aloes, an.* ʒ i. *fol. ſabin. nigel. arthemiſ. an.* ʒ ii. *rad. Helleb. nigr.* ʒ i. *croci*, ℈ i. *cum ſucco mercur. & melle communi*: make a peſſary in Cotton. This which followes is more effectuall. ℞. *ſucci rut. abſinth. an.* ʒ ii. *myrrh. euphorb. caſtor. ſabin. diacrid. terebinth. galban. theriac. an.* ʒ i.

How aromatick things provoke the courſes.

Peſſaries to provoke the terms.

make a peſſary according to art; let a thred hang out of the one end of the peſſaries, that ſo you may eaſily draw them forth as you pleaſe.

How to ſtop the courſes flowing too immoderately.

But if this menſtruous flux once provoked, flow too immoderately, it muſt be ſtopped by uſing meats of groſſer and more viſcide juice, by opening a veine in the arm, application of cupping glaſſes under the dugs, frictions and ligations of the upper parts, as the armes, putting up of peſſaries, application of refrigerating and aſtringent plaſters, to the lower belly, ſhare and loines, laying the woman in a convenient place, and not upon a feather-bed.

This following injection ſtoppeth the blood flowing out of the wombe, ℞. *aquæ plant. & fabror. an.* ℔ i. *nucum cupreſ. gallar. immatur. an.* ʒ ii. *berber. ſumach. balauſt. vitriol. rom. alum. roch. an.* ʒ ii. *bulliant omnia ſimul, & fiat decoctio*: of this make injection into the wombe. In the performance of all theſe things, I would have the Surgeon depend upon the advice of a Phyſitian, as the occaſion and place ſhall permit.

How to provoke the hæmorrhoides.

But if nature endeavour to free it ſelfe of the peſtilent matter by the hœmorrhoides, you may provoke them by frictions and ſtrong ligatures in the lower parts, as if the thighes or legs were broken, by ventoſes applyed with great flame to the inner ſide of the thigh, by application of hot and attractive things to the fundament, ſuch as are fomentations, emplaſters, unguents, ſuch as is uſually made of an onion roſted under the embers, and incorporated with Treacle, and a little oile of Rue: after the hœmorrhoid veines, by theſe meanes, come to ſhew themſelves, they ſhal be rubbed with rough linnen cloths, or fig leaves, or a raw onion, or an oxe gall mixt with ſome pouder of *Coloquintida*: laſtly you may apply horſe-leaches, or you may open them with a Lancet, if they hang much forth of the fundament, and be ſwolne with much blood. But if they flow too immoderately, they may be ſtayed by the ſame meanes as the courſes.

Chap. XXXIX.

Of procuring evacuation by ſtoole, or a fluxe of the belly.

NAture often times, both by it ſelfe, of its owne accord, as alſo helped by laxative and purging medicines, caſts into the belly and guts, as into the ſinke of the body, the whole matter of a peſtilent diſeaſe, whence are cauſed Diarrhæa's, Lienteries, and Dyſenteries; you may diſtinguiſh theſe kindes of fluxes of the belly, by the evacuated excrements. For if they be thinne and ſincere, that is, reteine the nature of one, and that a ſimple humour, as of choler, melancholy or phlegme, and if they be caſt forth in a great quantity, without the ulceration or excoriation of the guts, vehement or fretting paine, then it is a *Diarrhæa*, which ſome alſo call *fluxus humoralis*. It is called a *Lienteria*, when as by the reſolved retentive faculty of the ſtomacke and guts cauſed by ill humours, either there collected, or flowing from ſome other place, or by a cold & moiſt diſtemper, the meat is caſt forth crude, & almoſt as it was taken. A *Dyſenteria* is when as many and different things, and oft times mixt with blood, are caſt forth with pain, gripings, and an ulcer of the guts, cauſed by acride choler, fretting inſunder the coats of the veſſels.

What a Diarrhæa is.

What a Dyſenteria is.

But if in any kinde of diſeaſe, certainely in a peſtilent one, fluxes of the belly happen immoderate in quantity, and horrible in the quality of their contents, as liquid, viſcous, frothy as from melted greace, yellow, red, purple, greene, aſh-coloured, blacke, and exceeding ſtinking. The cauſe is various, and many ſorts of ill humours, which taken hold of by the peſtilent malignity, turne into divers ſpecies, differing in their whole kinde both from their particular, as alſo from nature in generall, by reaſon of the corruption of their proper ſubſtance, whoſe inſeparable ſigne is ſtinch, which is oft times accompanied by wormes.

The cauſe of various, and ſtinking excrements in the plague.

A hiſtory.

In the campe at *Amiens* a peſtilent Dyſentery was over all the Campe, in this the ſtrongeſt Souldiers purged forth meere blood: I diſſecting ſome of their dead bodies, obſerved the mouths of the Meſaraike Veines and Arteries, opened and much ſwollen, and whereas they entered into the guts, were juſt like little Catyledones, out of which, as I preſſed them, there flowed blood. For both by the exceſſive heat of the ſummers ſunne, and the mindes of the enraged ſouldiers, great quantity of acride and cholericke humour was generated; and ſo flowed into the belly: but you ſhall know whether the greater or the leſſer guts be ulcerated, better by the mixture of the blood with the excrements, than by the ſite of the paine, therefore in the one you muſt rather worke by Glyſters, but in the other, by Medicines taken by the mouth.

Therefore if by gripings, a *teneſmus*, the murmuring and working of the guts, you ſuſpect in a peſtilent diſeaſe, that nature endeavours to disburden it ſelf by the lower parts, neither in the meane while doe it ſucceed to your deſire, then muſt it be helped forward by art, as by taking a potion of ℥ ß. of *hiera ſimplex*, and a dramme of *Diaphenicon* diſſolved in worme-wood water.

A potion.

Alſo Glyſters are good in this caſe, not onely for that they aſſwage the gripings and paines, and draw by continuation or ſucceſſion from the whole body, but alſo becauſe they free the meſaraike veines and guts from obſtruction and ſtuffing, ſo that by opening and as it were unlocking of the paſſages, nature may afterwards more freely free it ſelfe from the noxious humours. In ſuch glyſters they alſo ſometimes mixe two or three drammes of Treacle, that by one and the ſame labour they may retunde the venenate malignity of the matter.

There may alſo be made for the ſame purpoſe ſuppoſitories of boyled hony ℥ i. of *hierapicra* and common ſalt, of each ʒ ß. or that they may bee the ſtronger, of hony ℥ iii. of oxe gall ℥ i. of Scammony, *euphorbium* and *coloquintida* poudred, of each ʒ ß. The want of theſe may be ſupplied by nodula's made in this forme. ℞. *vitell. ovor.* nu. iii. *fellis bubuli, & mellis, an.* ℥ ß. *ſalis com.* ʒ ß. let them be ſtirred together, and well incorporated, and ſo parted into linnen ragges, and then bound up into nodula's, of the bigneſſe of a filberd, and ſo put up into the fundament; you may make them more acride by adding ſome powder of *Euphorbium* or *Coloquintida*.

Suppoſitories.

CHAP. XL.

Of ſtopping the fluxe of the belly.

Violent and immoderate ſcourings, for that they reſolve the faculty, and lead the patient into a conſumption and death, therefore if they ſhall appear to be ſuch, they muſt be ſtayed in time by things taken and injected by the mouth and fundament. To this purpoſe may a pudding be made of wheat flower boyled in the water of the decoction of one pomegranate, berberies, bole armenick, *terra ſigillata*, and white poppie ſeeds, of each ʒ i. The following Almond milke ſtrengthens the ſtomacke, and mitigates the acrimony of the cholericke humour, provoking the guts to excretion. Take ſweet Almonds boiled in the water of barly, wherein ſteele or Iron hath been quenched, beat them in a marble morter, and ſo with ſome of the ſame water make them into an Almond milk, wherto adding ʒ i. of *Diarhodon Abbatis* you may give it to the patient to drink.

A haſty pudding to ſtay the laske.

This following medicine I learnt of Dr. *Chappelaine* the Kings chiefe phyſitian, who received it of his father, and held it as a great ſecret, & was wont to preſcribe it with happy ſucceſſe to his patients: It is thus, ℞. *boli armen. terræ ſigil. lapid. hæmat. an.* ʒ i. *picis navalis*, ʒ i ß. *coral rub. marg. elect. corn. cervi uſt. & loti in aq. plant. an.* ℈ i. *ſacchar. roſ.* ℥ ii. *fiat pulviſc.* of this let the patient take a ſpoonefull before meat, or with the yolke of an egge.

D. Chappelaires medicine to ſtay a ſcouring.

Chriſtopher Andrew in his *æcoiätria* much commendeth dogges dung, when as the dogge hath for three dayes before bin fed onely with bones.

Quinces roſted in embers, or boyled in a pot, the conſerve of cornelian cherries, preſerved berberies and myrabalans, roſted nutmeg taken before meat, ſtrengthen the ſtomack and ſtay the laske; the patient muſt feed upon good meats, and theſe ra-

Drinke. ther roaſted than boiled. His drinke ſhall be chalibeate water of the decoction of a ſoure pomegranate beaten, or of the decoction of a quince, medlars, cervices, mulberies, bramble berries, and the like things, endued with a faculty to binde and waſte the excrementitious humidities of the body: theſe waters ſhall be mixed with ſyrupe of red currance, Julep of roſes, and the like.

Ointments. Let the region of the ſtomacke and belly be anointed with oile of maſticke, *Moſchatelinum*, myrtles and quinces. Alſo a cruſt of bread newly drawn forth of the oven and ſteeped in vinegar and roſe water, may be profitably applyed; or elſe a cataplaſme of red roſes, ſumach, berberies, myrtles, the pulpe of quinces, maſtick, bean flower, and hony of roſes made up with calibeate water.

Glyſters to ſtay a fluxe. Anodyne, abſtergent, aſtringent, conſolidating and nouriſhing glyſters ſhall bee injected. Theſe following retund the acrimony of humours, and aſſwage paine. ℞. *fol. lactuc. hyoſc. acetoſ. portul. an.* m. i. *flor. violar. & nenuph. an.* p i. *fiat decoctio ad* ℔ i. *in colatura diſſolve caſſiæ fiſtul.* ʒ vi. *olei roſat. & nenuph. an.* ℥ i ß. *fiat clyſter.* Or elſe, ℞. *roſ. rub. hord. mund. ſem. plant. an.* p i. *fiat decoctio, in colatura adde olei roſ.* ℥ ii. *vitel. ovor.* ii. *fiat clyſter.* Or, ℞. *decoctionis Capi, crur. vitellin. & capit. vervicin. una cum pelle,* ℔ ii. *in qua coquantur fol. violar. malv. mercur. plantag. an.* m i. *hord. mund.* ℥ i. *quatuor ſem. frigid. major. an.* ʒ ß. *in colaturæ* ℔ ß. *diſſolve caſſ. recenter extract.* ℥i. *ol. viol.* ℥ iv. *vitellor. ovor.* ii. *ſach. rub.* ℥ i. *fiat clyſter.* Or, ℞. *flor. chamæm. melil. aneth. an.* p i. *rad. biſmal.* ℥i. *fiat decoctio in lacte; colaturæ adde mucag. ſem, lin. fænugr. extract. in aqua malv.* ℥ ii. *ſacchar. rub.* ℥ i. *olei cham. & aneth. an.* ℥ i ß. *vitellor. ovor.* ii. *fiat clyſter.*

Such glyſters muſt be long kept that they may more readily mitigate paine. When ſhavings of the guts appeare in the ſtooles, it is an argument that there is an ulcer in the guts; therefore then wee muſt uſe detergent and conſolidating glyſters, as this which followes.

A glyſter for ulcerated guts. ℞. *hordei integr.* p ii. *roſ. rub. flor. chamæm. plantag. apii, an.* p i. *fiat decoctio, in colatura diſſolve mellis roſat. & ſyr. de abſinth. an.* ℥ i ß. *vitel. ovor.* ii. This following glyſter conſolidateth. ℞. *ſucci plantag. centinod. & portulac.* nu ℥ ii. *bol. armen. ſang. dracon. amyl. an.* ʒ i. *ſebi hircini diſſoluti,* ʒ iii. *fiat clyſter.* Alſo cowes milke boyled with plantaine and mixed with ſyrupe of roſes is an excellent medicine for the ulcerated guts.

A very aſtringent glyſter. This following glyſter bindes. ℞. *caud. equin. plant. polygon. an.* m i. *fiat decoctio in lacte uſtulato ad* quart. iii. *& in colatura adde boli arm. terræ ſigil. ſang. dracon. an.* ʒ ii. *albumina duor. ovor. fiat clyſter.* Or elſe, ℞. *ſuc. plant. arnogloſ. centinod. portulac. reſidentia facta depuratorum quantum ſufficit pro clyſtere, addendo pul. boli armeni, terræ ſigil. ſang. dracon. an.* ʒ i. *ol. myrthin. & roſat. an.* ℥ ii. *fiat clyſter.*

If pure blood flow forth of the guts, I could wiſh you to uſe ſtronger aſtrictives. To which purpoſe I much commend a decoction of pomegranate pills, of cypreſſe nuts, red roſe leaves, ſumach, alome, and vitrioll made with ſmithes water, and ſo made into glyſters, without any oyle. It will bee good with the ſame decoction to foment the fundament, *perinæum*, and the whole belly.

Aſtringent glyſters ought not to bee uſed before that the noxious humours bee drawne away and purged by purging medicines, otherwiſe by the ſtoppage hereof, the body may chance to be oppreſſed.

A nouriſhing glyſter. If the patient bee ſo weake that hee cannot take or ſwallow any thing by mouth, nutritive glyſters ſhall be given him. ℞. *decoctionis capi pinguis, & cruris vitulini, coct. cum acetoſa, bugloſſo, boragine, pimpinella, lactuca,* ℥ x. *vel* xii. *in quibus diſſolve vitellos ovorum,* num iii. *ſacchari roſati, & aquæ vitæ, an.* ℥ i. *butyri recentis non ſaliti,* ʒ ii. *fiat clyſter.*

Chap.

CHAP. XLI.

Of evacuation by inſenſible tranſpiration.

THe peſtilent malignity as it is oft times drawne by the pores, by tranſpiration into the body, ſo oft times it is ſent forth inviſibly the ſame way againe. For our native heat that is never idle in us, diſperſeth the noxious humours attenuated into vapours and aire through the unperceivable breathing places of the skin. An argument hereof is, we ſee that the tumours and abſceſſes againſt nature, even when they are come to ſuppuration, are oft times reſolved and diſcuſſed by the onely efficacy of nature, and heate, without any helpe of art. Therefore there is no doubt, but that nature being prevalent, may free it ſelf from the peſtilent malignity by Tranſpiration, ſome Abſceſſe, *Bubo* or Carbuncle being come forth, and ſome matter collected in ſome certaine part of the body. For when as nature and the native heat are powerfull and ſtrong, nothing is impoſſible to it, eſpecially when as the paſſages are alſo in like manner free and open.

Tumours are oft-times diſcuſſed by the force of nature after they are ſuppurated.

CHAP. XLII.

How to cure Infants and Children taken with the Plague.

IF that it happen that ſucking or weaned children be infected with the peſtilence, they muſt bee cured after another order than is yet deſcribed. The Nurſe of the ſucking childe muſt governe her ſelfe ſo in dyet and the uſe of medicines, as if ſhe were infected with the peſtilence her ſelf: Her dyet conſiſteth in the uſe of the ſix things not naturall. Therefore let it be moderate, for the fruit or profit of that moderation in dyet cannot chuſe but come unto the Nurſes milke, and ſo unto the infant who liveth onely by the milke. And the infant it ſelfe muſt keep the ſame diet as neere as he can in ſleep, waking, and expulſion, or avoyding of ſuperfluous humours and excrements of the body. Let the Nurſe bee fed with thoſe things that mitigate the violence of the feaveriſh heat: as cooling brothes, cooling herbs, and meats of a moderate temperature: ſhee muſt wholy abſtaine from wine, and anoint her nipples, as often as ſhee giveth the infant ſucke, with water, or juice of ſorrell tempered with ſugar of roſes. But the infants heart muſt bee fortified againſt the violence of the encreaſing venome, by giving it one ſcruple of treacle in the Nurſes milke, the broth of a pullet, or ſome other cordiall water. It is alſo very neceſſary to anoint the region of the heart, the emunctories, and both the wreſts with the ſame medicine: neither were it unprofitable to ſmell often unto Treacle diſſolved in roſe water, vinegar of roſes and a little *aqua vitæ*, that ſo nature may bee ſtrengthened againſt the malignity of the venome. When the children are weaned, and ſomewhat well growne, they may take medicines by the mouth, for when they are able to concoct and turne into bloud meats that are more groſſe and firm than milk, they may eaſily actuate a gentle medicine. Therefore a potion muſt be prepared for them of twelve graines of treacle, diſſolved with a little of the ſyrupe of ſuccory in ſome cordiall water, or the broth of a capon: unleſſe that any had rather give it with conſerve of roſes, in forme of a bole: but treacle muſt bee given to children in very ſmall quantity, for if it be taken in any large quantity, there is great danger leſt that by inflaming the humours, it inferre a feaver. Furthermore, broth may be prepared to be taken often, made of a capon ſeaſoned with ſorrell, lettuce, purſlaine and cooling ſeeds, adding thereto bole armenick and *terra ſigillata*, of each one ounce, being tyed in a rag, and ſometimes preſſed out from the decoction. For bole armenicke, whether it be by its marvellous faculty of drying, or by ſome hidden property, hath this vertue, that being drunken (according as *Galen* witneſſeth) it cureth thoſe that are infected with the peſtilence, if ſo be that they may bee cured by phyſick: ſo that thoſe that cannot be cured with bole armenick, cannot bee preſerved

The nurſe muſt be dieted when as the child is ſick.

Medicines may be given to ſuch as are weaned.

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The benefit of ſweate.

ſerved by any other medicines. But becauſe the bodies of children are warme, moiſt and vaporous, they are eaſily delivered of ſome portion of the venenate matter through the pores of the skin by provoking ſweat, with a decoction of parſly ſeeds, prunes, figs, and the roots of ſorrell, with a little of the powder of Harts horne, or Ivory. But that the ſweat may be more abundant and copious, apply ſpunges dipped & preſſed out in the hot decoction of ſage, roſemary, lavender, bayes, chamomil, melilote and mallowes, or elſe ſwines bladders halfe filled with the ſame decoction, to the arme-holes, and to the groines. In the time that they ſweat, let their faces be fanned to coole them. Alſo let a nodule of Treacle, diſſolved in vinegar and water of Roſes, bee appled to the noſtrils; but alwaies uſe a moderation in ſweating, becauſe that children are of a ſubſtance that is eaſie to be diſſipated and reſolved: ſo that oftentimes although they do not ſweat, yet they feel the commodities of ſweating, the matter of the venome being diſſipated by the force of the heat through the pores of the skin. But in the ſweating while the face is fanned, and ſweet & cordiall things applyed to the noſtrils, nature muſt bee recreated and ſtrengthened, which otherwiſe would be debilitated through ſweating, that it may bee better able to expell the venome. After that the ſweat is wiped away, it is very profitable to take a potion of conſerve of Roſes, with the powder of Harts horne or of Ivorie diſſolved in the waters of Bugloſſe and Sorrel, the better to coole and defend the heart. If there appeare any tumour under the arme-holes or in the groine, let it bee brought to maturation with a mollifying, relaxing, drawing, and then with a ſuppurative fomentation, or Cataplaſme; alwaies uſing and handling it as gently as you may, conſidering the tender age of the infant. If you have need to purge the patient, the purgation following may be preſcribed with great profit. Take of Rubarbe in powder one dram, infuſe it in the water of *Carduus Benedictus*, with one ſcruple of Cinamon, in the ſtraining diſſolve two drams of *Diacatholicon*, of ſyrupe of Roſes laxative three drams; make thereof a ſmall potion. This is the cure of the Peſtilence and of the peſtilent Feaver, as far as I could learn from the moſt learned Phyſicians, and have obſerved my ſelfe by manifold experience by the grace and permiſſion of God: of whom alone, as the Author of all good things that mortall men injoy, the true and certaine preſervatives againſt the peſtilence are to be deſired and hoped for.

The forme of a purge to be given to a child.

The End of the Twentie ſecond Booke.

OF THE MEANES AND MANNER TO REPAIRE OR SUPPLY THE NATURALL or accidentall defects or wants *in mans body.*

The Twentie Third Booke.

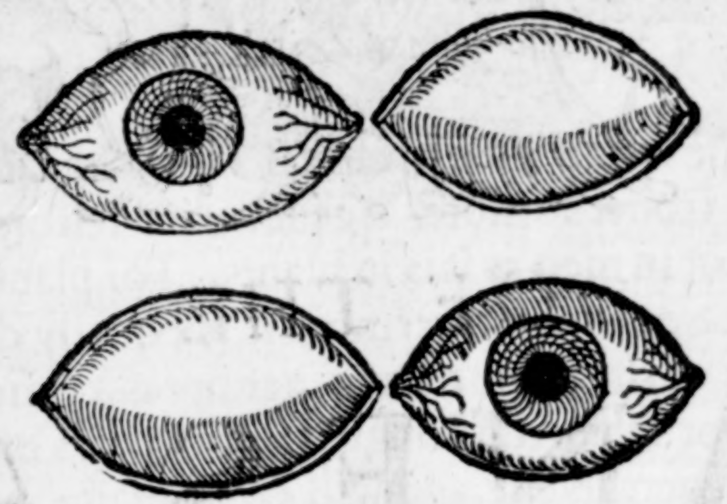
Chap. I.

How the loſſe of the naturall or true eye may bee covered, hidden or ſhadowed.

The fourth duty of a Surgeon.

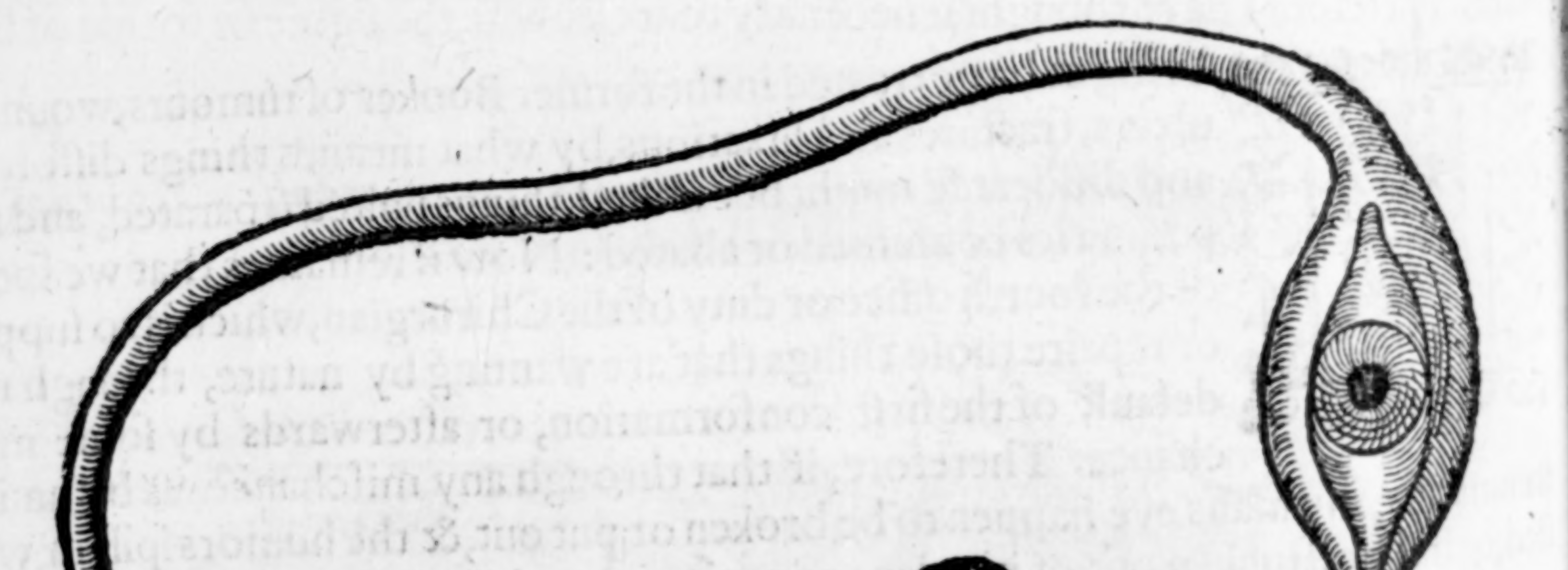
HAving at large treated in the former Bookes of tumours, wounds, ulcers, fractures and luxations, by what meanes things diſſolved and diſlocated might bee united, things united ſeparated, and ſuperſluities conſumed or abated: Now it remaines that we ſpeak of the fourth office or duty of the Chirurgian, which is to ſupply or repaire thoſe things that are wanting by nature, through the default of the firſt conformation, or afterwards by ſome miſchance. Therefore, if that through any miſchance, as by an inflammation, any mans eye happen to be broken or put out, & the humors ſpilt or waſted, or if it be ſtrucken out of his place or cavity wherein it was naturally placed, by any violent ſtroak, or if it waſte or conſume by reaſon of a conſumption of the proper ſubſtance, then there is no hope to reſtore the ſight or function of the eye, yet you may cover the deformity of the eye ſo loſt (which is all you can doe in ſuch a caſe) by this meanes: If that when you have perfectly cured and healed the ulcer, you may put another eye artificially made of gold or ſilver, counterfeited and enamelled, ſo that it may ſeem to have the brightneſſe, or gemmie decencie of the naturall eye, into the place of the eye that is ſo loſt.

The formes of eyes artificially made of gold or ſilver, poliſhed and enameled, ſhewing both the inner and outer ſide.



But if the patient be unwilling, or by reaſon of ſome other meanes cannot weare this eye ſo prepared, in his head, you may make another on this wiſe. You muſt have a ſtring or wiar, of iron bowed or crooked, like unto womens eare-wiars, made to bind the head harder or looſer as it pleaſeth the patient, from the lower part of the head behinde above the eare, unto the greater corner of the eye, this rod or wiar muſt be covered with ſilke, and it muſt alſo be ſomewhat broad at both the ends, leſt that the ſharpeneſſe thereof ſhould pierce or pricke any part that it commeth unto. But that end wherewith the empty hollowneſſe muſt be covered, ought to bee broader than the other, and covered with a thin piece of leather, that thereon the colours of the eye that is loſt may be ſhadowed or counterfeited. Here followeth the figure or portraiture of ſuch a ſtring or wiar.

The forme of an iron wiar wherewith the deformity of an eye that is loſt may bee ſhadowed or covered.



CHAP. II.

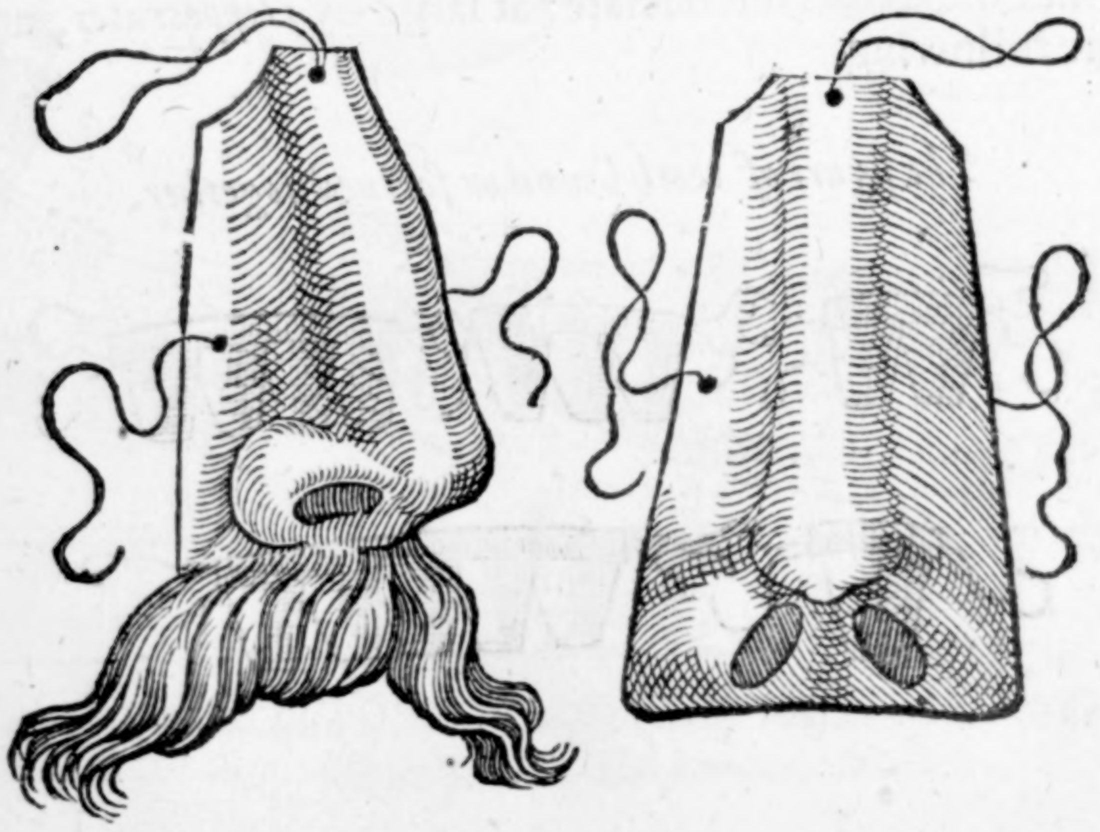
By what meanes a part of the noſe that is cut off, may be reſtored; or how in ſtead of the noſe that is cut off, another counterfeit noſe may be faſtened or placed in the ſtead.

WHen the whole noſe is cut off from the face, or portion of the noſtrils from the noſe, it cannot bee reſtored or joyned againe: for it is not in men as it is in plants. For plants have a weake and feeble heate, and furthermore it is equally diſperſed into all the ſubſtance of the plant or tree, neither is it eaſie to be conſumed or waſted, for when the boughes or branches of trees are broken, torne, or cut away, they live neverthe leſſe, and will grow againe when they are ſet or grafted; neither is there any ſeate for the heart rightly prepared in them from whence the heat muſt neceſſarily run, and diſperſe it ſelfe continually into all the parts thereof. But contrariwiſe, the ſeparated parts of more perfect living creatures, as of men, are incontinently deprived of life, becauſe they have their nouriſhment, life, ſenſe, and whole ſuſtentation not of themſelves, by faculties flowing or comming unto them from ſome other parts, neither are they governed by their own heat as plants, but by a borrowed heat, ſo that above or beſide the naturall faculty of the liver, another vitall faculty commeth unto it from the heart.

Why the parts of plants being cut off, may grow againe, but thoſe of man cannot.

Wherefore in ſtead of the noſe cut away or conſumed, it is requiſite to ſubſtitute another made by Art, becauſe that nature cannot ſupply that defect: this noſe ſo artificially made, muſt be of gold, ſilver, paper or linnen clothes glewed together, it muſt bee ſo coloured, counterfeited and made both of faſhion, figure and bigneſſe, that it may as aptly as is poſſible, reſemble the natural noſe: it muſt be bound or ſtayed with little threeds or laces unto the hinder part of the head or the hatte. Alſo if there be any portion of the upper lip cut off with the noſe, you may ſhadow it with annexing ſome ſuch thing that is wanting unto the noſe, and cover it with the haire on his upper lippe, that he may not want any thing that may adorne or beautifie the face. Therefore I have thought it neceſſary to ſet downe the figure or forme of both theſe kindes.

The forme of a noſe artificially made, both alone by it ſelfe, and alſo with the upper lip, covered as it were with the haire of the beard.



There was a Surgeon of Italy of late yeares which would reſtore or repaire the portion of the noſe that was cut away after this manner. Hee firſt ſcarified the callous edges of the maimed noſe round about, as is uſually done in the cure of hare-

A ſtange cure for a cut off noſe

lips: then he made a gaſh or cavity in the muſcle of the arme, which is called *Biceps*, as large as the greatneſſe of the portion of the noſe which was cut away did require: And into that gaſh or cavity ſo made, he would put that part of the noſe ſo wounded, & bind the patients head to his arm as if it were to a poaſt, ſo faſt that it might remain firme, ſtable and immoveable, and not leane or bow any way, and about forty dayes after, or at that time when he judged the fleſh of the noſe was perfectly agglutinated with the fleſh of the arm, he cut out as much of the fleſh of the arme, cleaving faſt unto the noſe, as was ſufficient to ſupply the defect of that which was loſt, & then he would make it even, & bring it, as by licking, to the faſhion & forme of a noſe, as near as art would permit, & in the mean while he did feed his patient with ponadoes, gellies, & all ſuch things as were eaſie to be ſwallowed & digeſted. And he did this work of curing the place where the fleſh was ſo cut out, only with certain balmes & agglutinative liquors. A younger brother of the family of St. *Thoan*, being weary of a ſilver noſe, which being artificially made, he had worn in the place of his noſe that was cut off, went to this Chirurgian into Italy, & by the means of the fore-named practice he recovered a noſe of fleſh againe, to the great admiration of all thoſe that knew him before. This thing truly is poſſible to be done, but it is very difficult both to the patient ſuffering, and alſo to the Chirurgian working. For that the fleſh that is taken out of the arme, is not of the like temperature as the fleſh of the noſe is, alſo the holes of the reſtored noſe cannot be made as they were before.

A hiſtory.

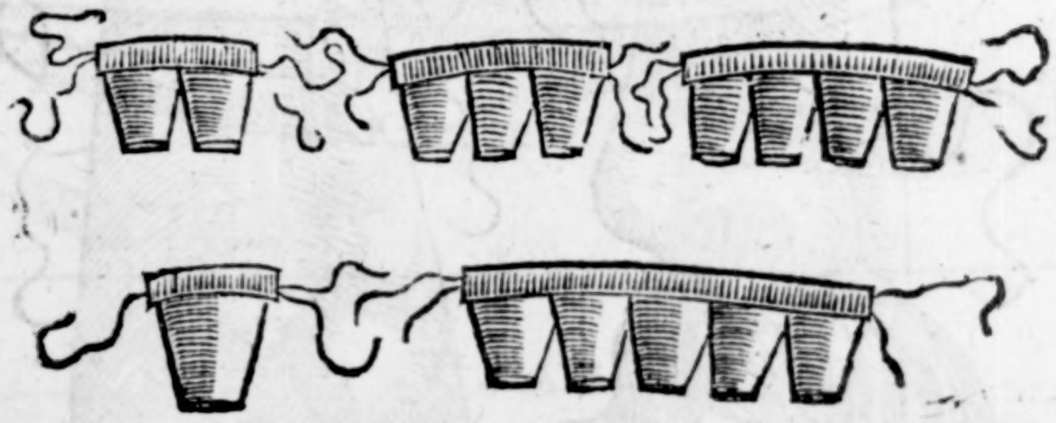
Chap. III.

Of the Placing of teeth artificially made in ſtead of thoſe that are loſt or wanting.

IT oftentimes happeneth that the fore teeth are moved, broken or ſtricken out of their places by ſome violent blow, which cauſeth deformity of the mouth, and hinders plain pronunciation. Therfore when the jaw is reſtored (if it were luxated or fractured) and the gums brought unto their former hardneſſe, other teeth artificially made of bone or Ivory may bee put in the place of thoſe that are wanting, and they muſt bee joyned one faſt unto another, and alſo ſo faſtened unto the naturall teeth adjoyning, that are whole; and this muſt chiefly bee done with a thread of gold or ſilver, or for want of either, with a common thread of ſilke or flaxe, as it is declared at large by *Hippocrates*, and alſo deſcribed in this figure following.

Sect. 2. lib. de art. ſent. 25.

The figure of teeth bound or faſtned together.



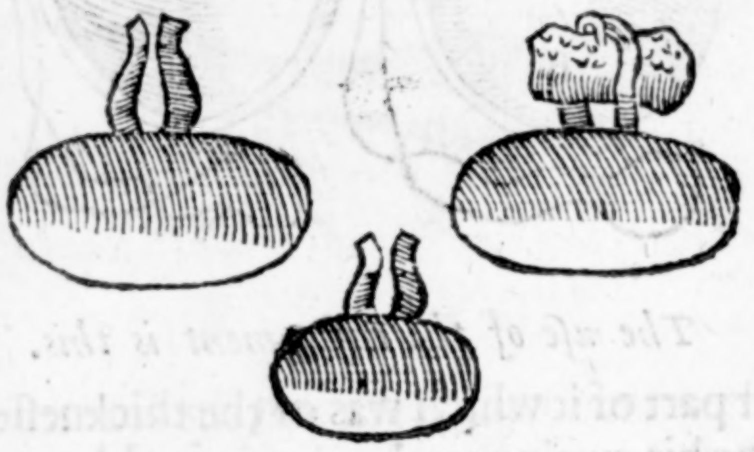
CHAP. IIII.

Of filling the hollowneſſe of the Pallat.

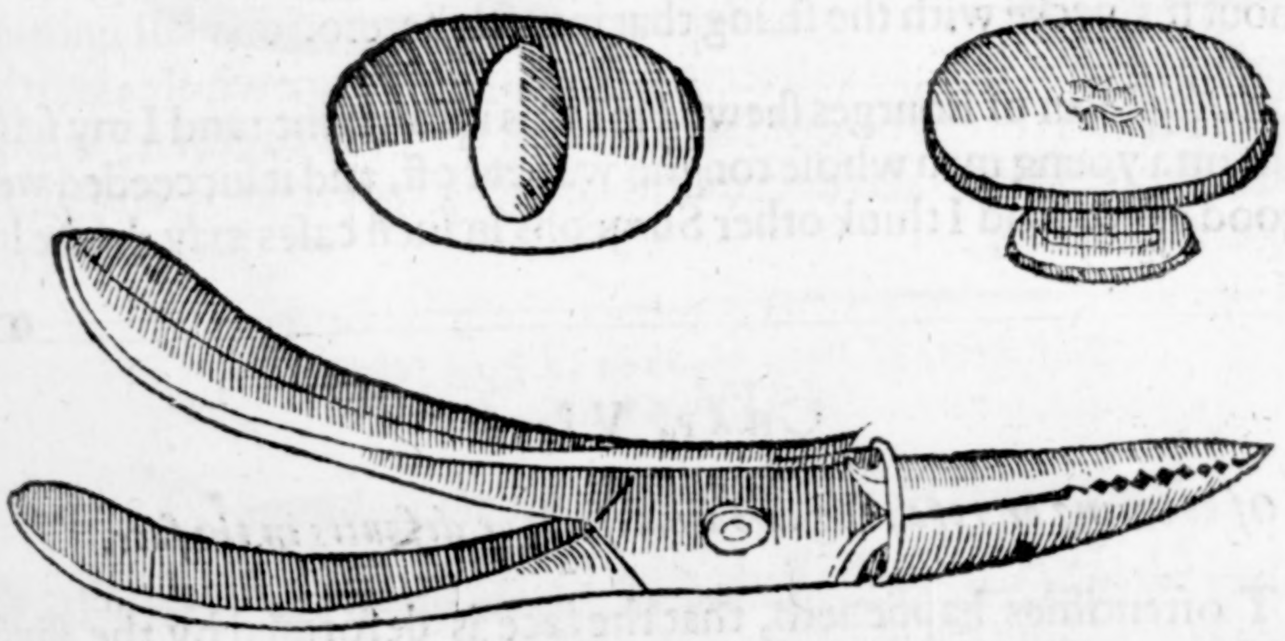
MAny times it happeneth that a portion or part of the bone of the pallat, being broken with the ſhot of a gun, or corroded by the virulency of the *Lues venerea*, falls away, which makes the patients to whom this happeneth, that they cannot pronounce their words diſtinctly, but obſcurely and ſnuffling: therefore I have thought it a thing worthy the labour to ſhew the meanes how it may be helped by art. It muſt be done by filling the cavity of the pallat with a plate of gold or ſilver a little bigger than the cavity its ſelfe is. But it muſt bee as thick as a French Crowne, and made like unto a diſh in figure, and on the upper ſide, which ſhall be towards the braine, a little ſpunge muſt bee faſtened, which, when it is moiſtened with the moyſture diſtilling from the brain, will become more ſwolne and puffed up, ſo that it will fill the concavity of the pallat, that the artificiall pallat cannot fall down, but ſtand faſt and firme, as if it ſtood of it ſelfe. This is the true figure of thoſe inſtruments, whoſe certain uſe I have obſerved not by once or twice, but by manifold triall in the battels fought beyond the Alpes.

The cauſes and hurt that enſues of the loſt pallate

The figure of plates to fill or ſupply the defects of the Pallat.



The figure of another plate for the Pallat, on whoſe upper ſide there is a button which may be turned when it is put into the place, with a ſmall Ravens bill, like this whoſe figure is here expreſſed.



CHAP. V.

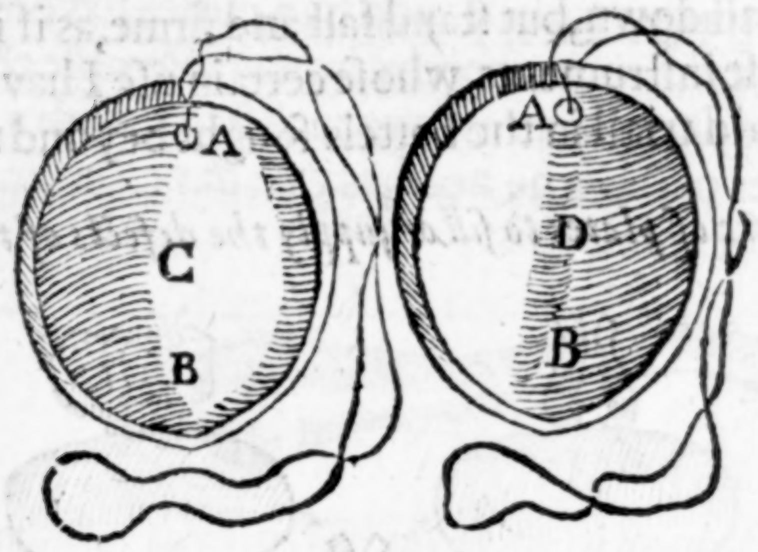
How to helpe ſuch as cannot ſpeake by reaſon of the loſſe of ſome part of the tongue.

CHance gave place and authority to this remedy, as to many other in our art. A certaine man dwelling in a village named *Tvoy le Chaſteau*, being ſome twenty foure miles from *Bourges*, had a great piece of his tongue cut off, by which occaſion hee remained dumbe ſome three yeares. It happened

A remedy found out by accident. A hiſtory.

on a time that as hee was in the fields with reapers, hee drinking in a woodden diſh, was tickled by ſome of the ſtanders by, not enduring the tickling, hee ſuddenly broke out into articulate and intelligible words. He himſelfe wondring thereat, and delighted with the novelty of the thing, as a miracle, put the ſame diſh to his mouth juſt in the ſame manner as before, and then he ſpake ſo plainly and articulately, that he might be underſtood by them all. Wherefore a long time following he alwaies carried this diſh in his boſome, to utter his mind, untill at length neceſſity, the miſtris of arts and giver of wit, inducing him, hee cauſed a woodden inſtrument to be neatly cut and made for him, like this which is here delineated, which hee alwaies carryed hanging at his neck, as the onely interpreter of his mind, and the key of his ſpeech.

An inſtrument made to ſupply the defect of the ſpeech when the tongue is cut off.



The uſe of the Inſtrument is this.

A. ſheweth the upper part of it which was of the thickneſſe of a nine-pence, which he did ſo hold betweene his cutting teeth, that it could not come out of his mouth, nor bee ſeene. B. ſheweth the lower part, as thick as a ſixe-pence, which he did put hard to the reſt of his tongue, cloſe to the membranous ligament which is under the tongue. That place which is depreſt and ſomewhat hollowed, marked with the letter C. is the inner part of the inſtrument. D. ſheweth the outſide of the ſame. Hee hanged it about his necke with the ſtring that is tyed thereto.

Textor the Phyſician of Bourges ſhewed me this inſtrument: and I my ſelfe made tryall thereof on a young man whoſe tongne was cut off, and it ſucceeded well, and took very good effect. And I think other Surgeons in ſuch caſes may do the like.

CHAP. VI.

Of covering or repairing certain defects or defaults in the face.

IT oftentimes happeneth, that the face is deformed by the ſudden flaſhing of Gunpowder, or by a peſtilent Carbuncle, ſo that one cannot behold it without great horrour. Such perſons muſt be ſo trimmed and ordered, that they may come in ſeemely manner into the company of others. The lips if they bee either cut off with a ſword, or deformed with the eroſion or eating of a peſtilent Carbuncle or ulcerated *Cancer*, ſo that the teeth may be ſeene to lye bare with great deformity. If the loſſe or conſumption of the lip bee not very great, it may be repaired by that way which we have preſcribed in the cure of hare-lips, or of an ulcerated *Cancer*. But if it be great, then muſt there be a lip of gold made for it, ſo ſhadowed and counterfeited, that it may not be much unlike in colour to the naturall lip, and it muſt be faſtened and tyed to the hat or cap that the patient weareth on his head, that ſo it may remaine ſtable and firme.

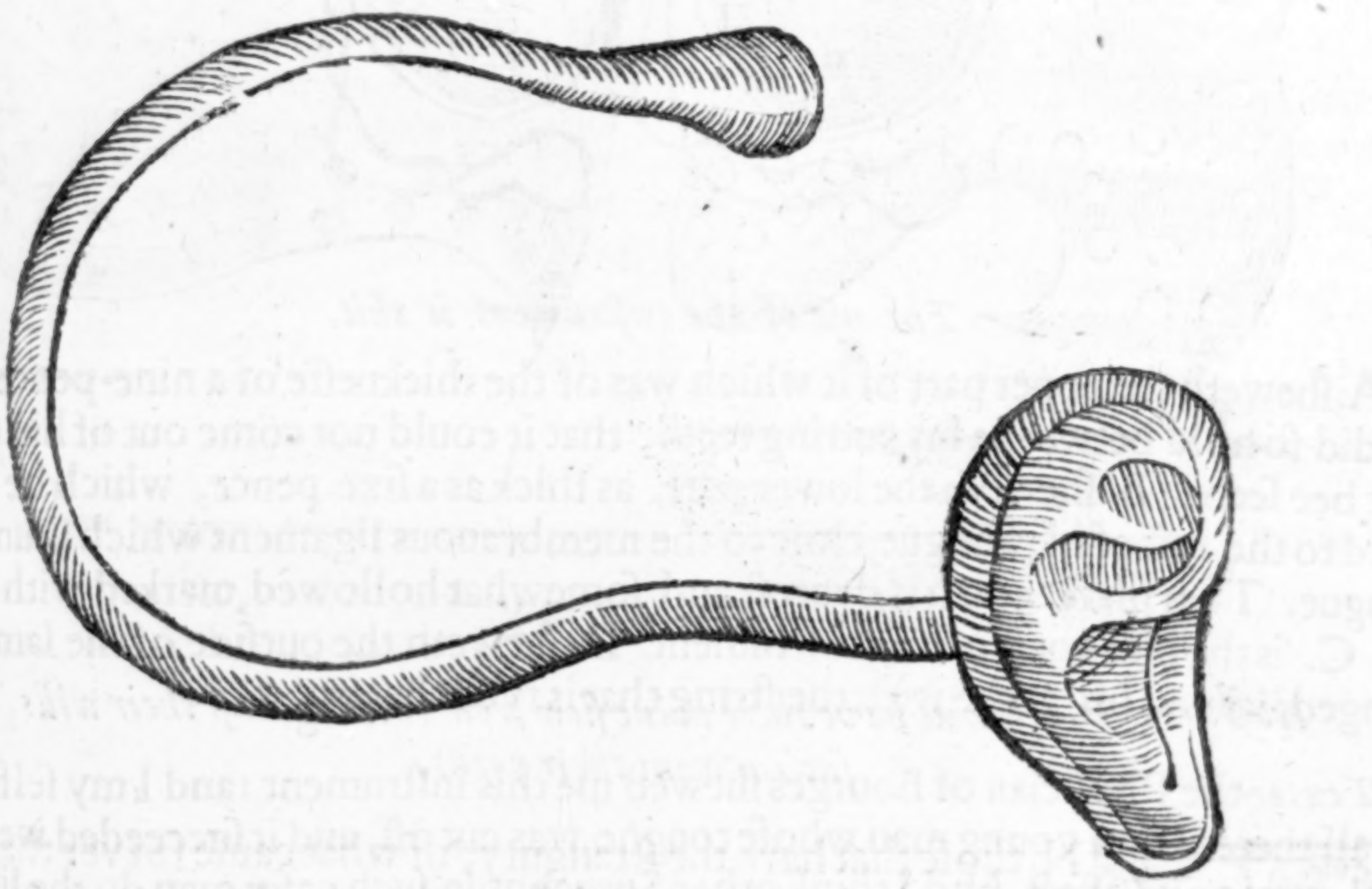
CHAP.

CHAP. VII.

Of the defects of the eares.

SUch as want their eares, either naturally or by misfortune, as through a wound, carbuncle, cancer, or the biting of wild beaſts: if ſo be that the eare be not wholly wanting, waſted, conſumed, or torne away, but that ſome portion thereof doth yet remaine, then muſt it not bee neglected, but muſt have many holes made therein with a bodkin, and after that the holes are cicatrized, let ſome convenient thing, made like unto the piece of the eare that is loſt, bee tyed or faſtned unto it by theſe holes.

But if the eare bee wholly wanting, another muſt bee made of paper artificially glewed together, or elſe of leather, and ſo faſtened with laces, from the toppe or hinder part of the head, that it may ſtand in the appointed place, and ſo the haire muſt be permitted to grow long, or elſe ſome cap worne under the hat which may hide or cover the deformity, unleſſe you had rather have it to bee ſhadowed and counterfeited by ſome Painter, that thereby it may reſemble the colour of a naturall eare, and ſo retein it in the place where it ought to ſtand, with a rod or wiar comming from the toppe or hinder part of the head, as wee have ſpoken before in the loſſe of the eye; and the forme thereof is this.



CHAP. VIII.

Of amending the deformity of ſuch as are crooke-backt.

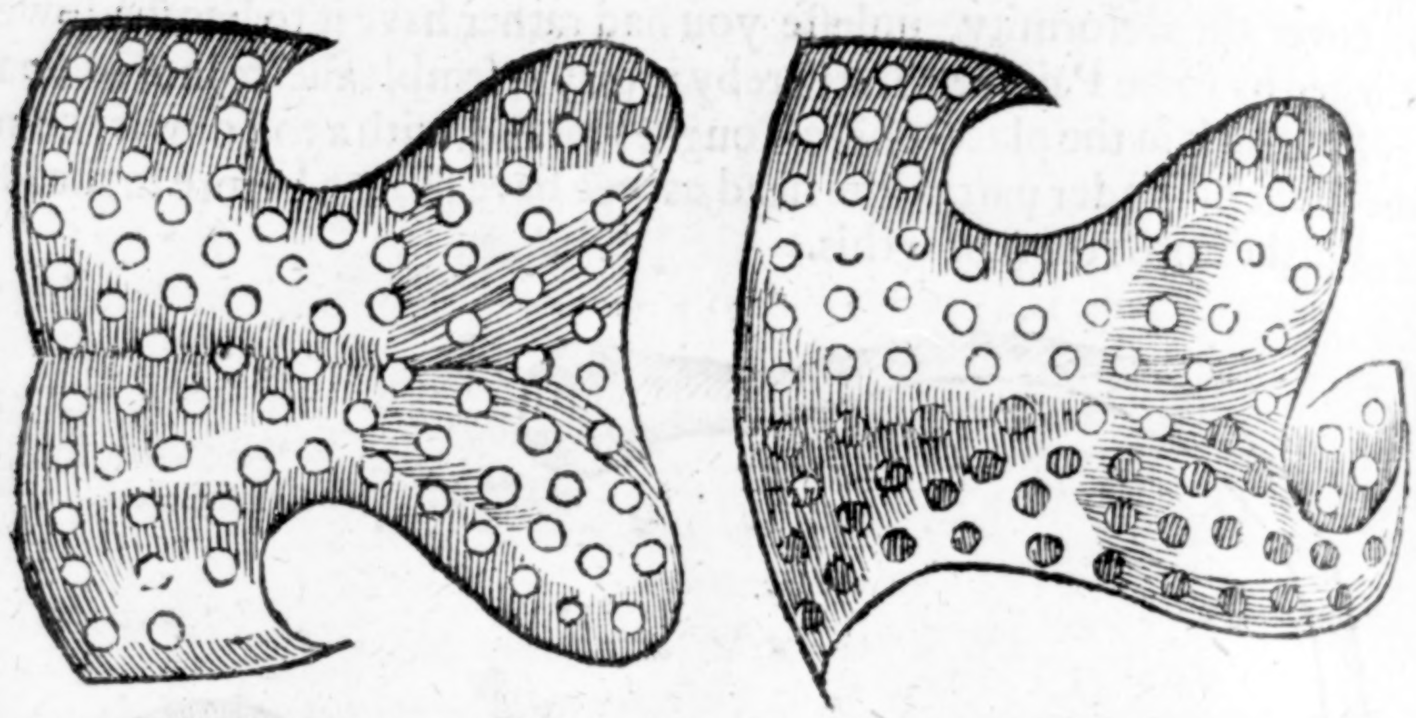
THe bodies of many, eſpecially young maids or girles (by reaſon that they are more moiſt and tender than the bodies of boyes) are made crooked in proceſſe of time, eſpecially by the wrenching aſide and crookedneſſe of the backe-bone. It hath many cauſes, that is to ſay, in the firſt conformation in the wombe, and afterwards by misfortune, as a fall, bruiſe, or any ſuch like accident, but eſpecially by the unhandſome and undecent ſituation of their bodies, when they are young and tender, either in carrying, ſitting or ſtanding (and eſpecially when they are taught to goe too ſoone) ſaluting, ſewing, writing, or in doing any ſuch like thing.

Cauſes of crookedneſſe.

In the meane while, that I may not omit the occaſion of crookedneſſe, that happens ſeldome to the country people, but is much incident to the inhabitants of great townes and cities, which is by reaſon of the ſtraitneſſe and narrowneſſe of the garments that are worne by them, which is occaſioned by the folly of mothers, who while they covet to have their young daughters bodies ſo ſmall in the middle as may be poſſible, plucke and draw their bones awry, and make them crooked. For the ligaments of the back-bone being very tender, ſoft and moiſt at that age, cannot ſtay it ſtrait, and ſtrongly, but being pliant, eaſily permits the ſpondels to ſlippe awry inwards, outwards, or ſidewiſe, as they are thruſt or forced.

The remedy for this deformity is to have breaſt-plates of iron, full of holes all over them, wherby they may be lighter to wear; and they muſt be ſo lined with bombaſt, that they may hurt no place of the body. Every three moneths new plates muſt be made for thoſe that are not yet arrived at their full growth, for otherwiſe by the daily afflux of more matter, they would become worſe. But theſe plates will do them ſmall good that are already at their full growth.

The forme of an iron Breaſt-plate, to amend the crookedneſſe of the Body.



Chap. IX.

How to relieve ſuch as have their urine flow from them againſt their wills, and ſuch as want their yards.

An inſtrument for ſuch as cannot hold their water.

IN thoſe that have the ſtrangury, of what cauſe ſoever that malady commeth, the urine paſſeth from them by drops, againſt their wils and conſent. This accident is very grievous and troubleſome, eſpecially to men that travaile: and for their ſakes onely I have invented the inſtrument here beneath deſcribed. It is made like unto a cloſe breech or hoſe, it muſt be of latin, & to contein ſome four ounces; it muſt be put into the patients hoſe, between his thighs, unto which it muſt be tied with a point by the ring. Into the open and hollow mouth of this inſtrument, which is noted with the letter C. the patient muſt put his yard, & into this concavity or hollowneſſe goeth a ſtay ſomewhat deep, it is marked with the letter B. and made or placed there, both to hold or beare the end of the yard, and alſo by his cloſe joint that it muſt have unto the veſſell, to ſtay the urine from going backe againe, when it is once in. But the letters A. and D. doe ſignifie all the inſtrument; that the former part, and this the hinder part thereof. Now this is the ſhape thereof.

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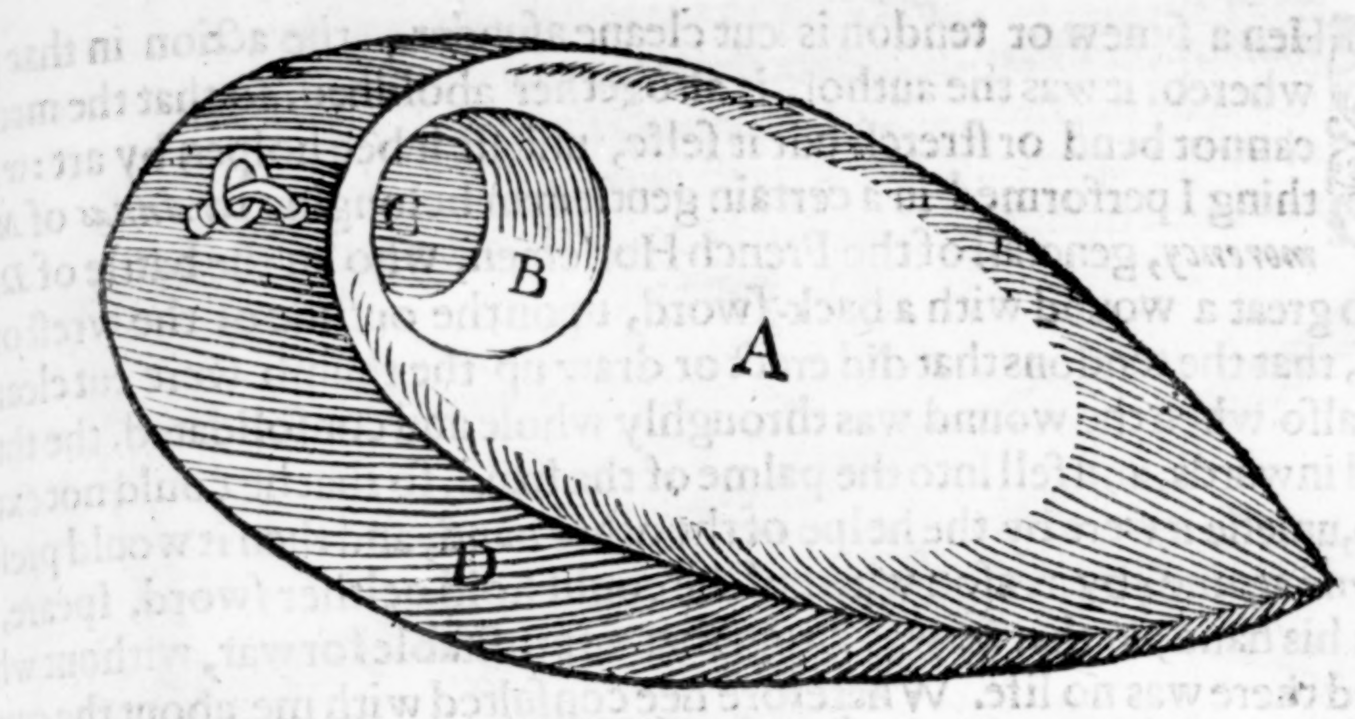
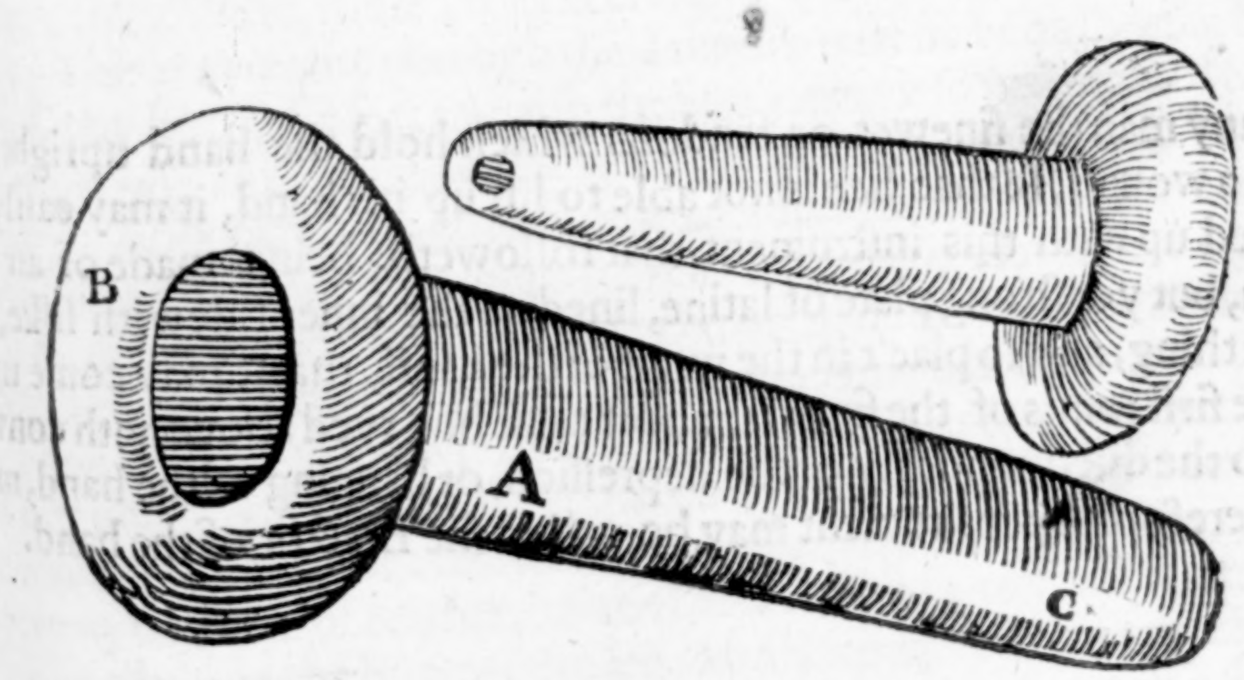
The figure of an inſtrument, which you may call A Baſon, or receptacle for the Urine.



Thoſe that have their yards cut off cloſe to their bellies, are greatly troubled in making of urine, ſo that they are conſtrained to ſit downe like women, for their eaſe. I have deviſed this pipe or conduit, having an hole through it as big as ones finger, which may be made of wood, or rather of latin.

A. and C. doe ſhew the bigneſſe and length of the pipe. B. ſheweth the brink on the broader end. D. ſheweth the outſide of the brinke. This Inſtrument muſt be aplied to the lower part of *os pectinis*: on the upper end it is compaſſed with a brink for the paſſage of the urine, for thereby it will receive the urine the better, and carry it from the patient, as he ſtandeth upright.

The deſcription of a pipe, or conduit, ſerving inſtead of the yard in making of water, which therefore wee may call an artificiall Yard.

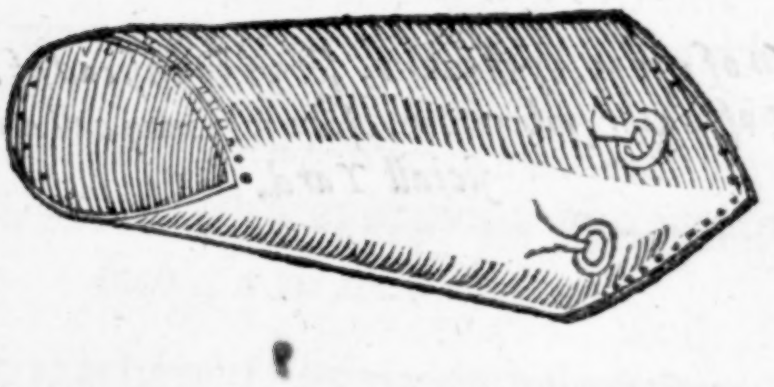


CHAP. X.

By what meanes the periſhed function or action of a thumbe or finger may be corrected and amended.

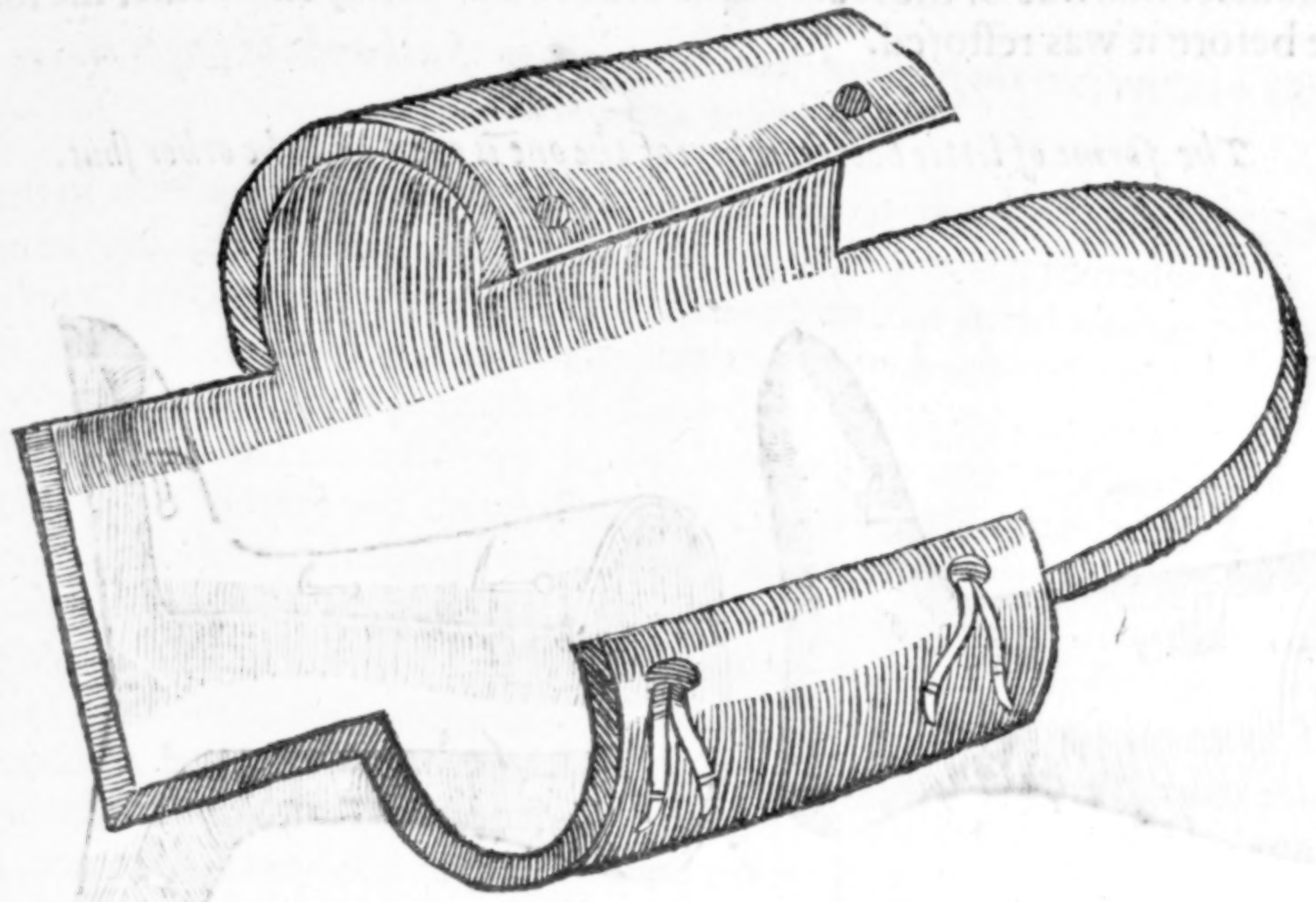
A hiſtory. WHen a ſynew or tendon is cut cleane aſunder, the action in that part, whereof it was the author, is altogether aboliſhed, ſo that the member cannot bend or ſtretch out it ſelfe, unleſſe it bee holpen by art: which thing I performed in a certain gentleman belonging to *Annas* of *Montmorency*, generall of the French Horſemen, who in the battle of *Dreux* received ſo great a wound with a back-ſword, upon the outſide of the wreſt of the right hand, that the tendons that did erect or draw up the thumb were cut clean inſunder, & alſo when the wound was throughly whole and conſolidated, the thumb was bowed inwards, and fell into the palme of the hand, ſo that he could not extend or lift it up, unleſſe it were by the helpe of the other hand, and then it would preſently fall downe againe; by reaſon whereof he could hold neither ſword, ſpeare, nor Javeline in his hand, ſo that he was altogether unprofitable for war, without which he ſuppoſed there was no life. Wherefore hee conſulted with me about the cutting away of his thumbe, which did hinder his griping, which I refuſed to doe, and told him that I conceived a meanes how it might bee remedied without cutting away. Therefore I cauſed a caſe to bee made for it of Latine, whereinto I put the thumbe: this caſe was ſo artificially faſtened by two ſtrings that were put into two Rings, made in it above the joint of the hand, that the thumbe ſtood upright, and ſtraight out, by reaſon whereof he was able afterwards to handle any kinde of weapon.

The forme of a thumbe or finger-ſtall of iron or latine, to lift up or erect the thumbe, or any other finger that cannot be erected of it ſelfe.



If that in any man the ſinewes or tendons which hold the hand upright, be cut aſunder with a wound, ſo that hee is not able to lift up his hand, it may eaſily bee erected or lifted up with this inſtrument that followeth, being made of an equall, ſtreight, thin, but yet ſtrong plate of latine, lined on the inner ſide with ſilke, or any ſuch like ſoft thing, and ſo plac't in the wreſt of the hand, that it may come unto the palme, or the firſt joints of the fingers, and it muſt bee tyed above with convenient ſtayes, and ſo the diſcommodity of the depreſſion, or hanging of the hand, may bee avoyded; therefore this inſtrument may be called the Erector of the hand.

The Erector of the Hand.



CHAP. XI.

Of helping thoſe that are Vari *or* Valgi, *that is, crooke-legged or crooke-footed, inwards or outwards.*

What *varus* is.

THoſe are ſaid to bee Varous, whoſe feet or legs are bowed or crooked inwards. This default is either from the firſt conformation in the wombe, through the default in the mother, who hath her legs in like manner crooked; or becauſe that in the time when ſhe is great with child, ſhe commonly ſits with her legs a croſſe: or elſe after the child is born, & that, either becauſe his legs be not well ſwathed, when he is laid into the cradle, or elſe becauſe they bee not well placed in carrying the infant, or if he be not wel looked unto by the nurſe when he learneth to goe, for the bones of infants are very tender, and almoſt as flexible as Waxe.

What *valgus* is.

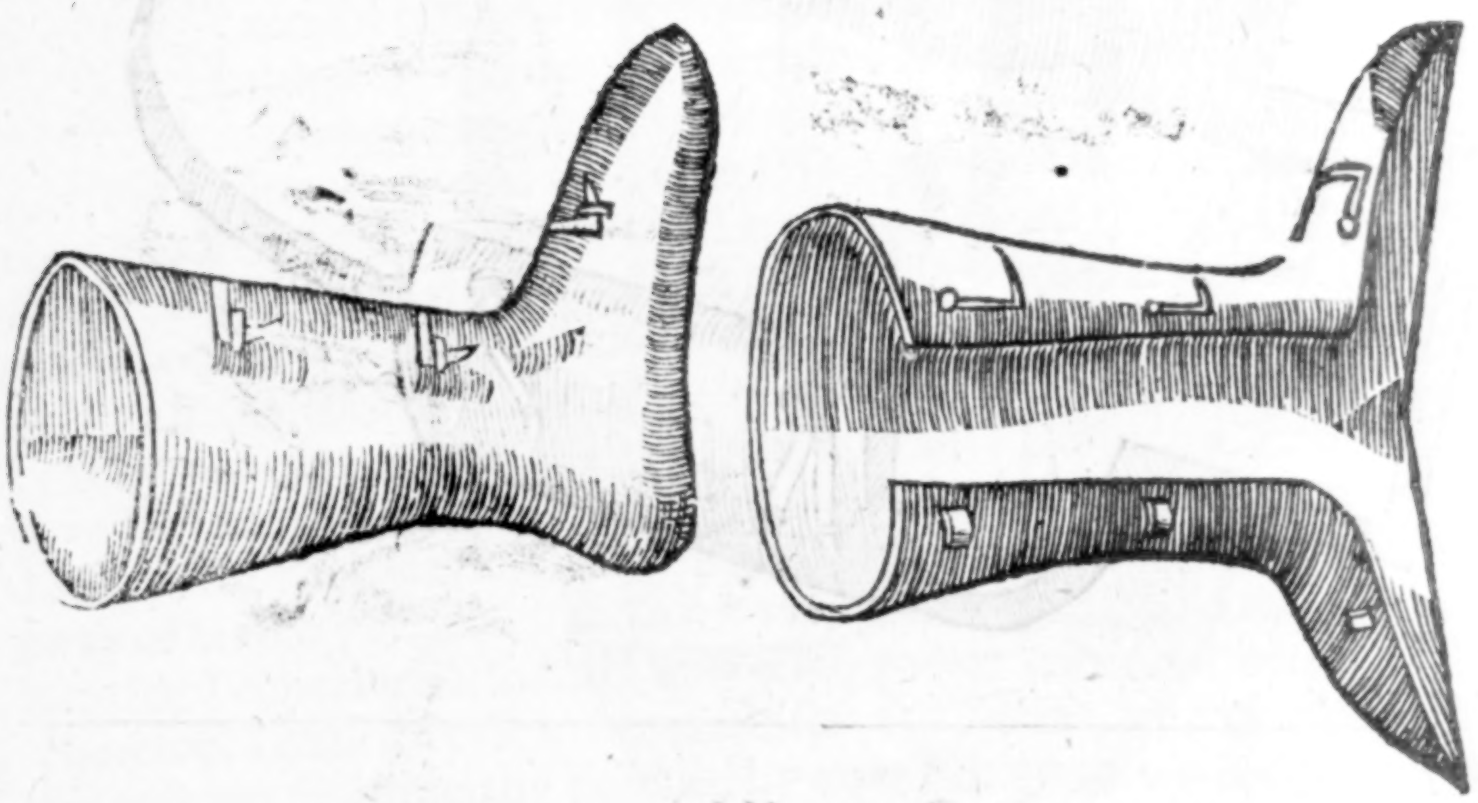
But contrariwiſe, thoſe are called *valgi*, whoſe legs are crooked or bowed outwards. This may come through the default of the firſt conformation, aſwell as the other, for by both, the feet and alſo the knees may bee made crooked; which thing, whoſoever will amend, muſt reſtore the bones into their proper and naturall place, ſo that in thoſe that are varous hee muſt thruſt the bones outwards, as though hee would make them valgous, and in thoſe that are valgous, hee muſt thruſt the bones inwards, as though hee would make them varous: neither is it ſufficient to thruſt them ſo, but they ought alſo to be retained there in their places after they are ſo thruſt, for otherwiſe they being not well eſtabliſhed, would ſlip back againe.

They muſt bee ſtayed in their places by applying of collers and bolſters on that ſide whereunto the bones doe leane and incline themſelves; for the ſame purpoſe boots may be made of leather, of the thickneſſe of a teſtone, having a ſlit in the former part all along the bone of the leg, and alſo under the ſole of the foot, that being drawne together on both ſides, they may be the better fitted, and ſit the cloſer to the leg. And let this medicine following be applyed all about the leg. ℞. *thuris, maſtich. aloës, boli armeni, an.* ℥i. *aluminis roch. reſinæ pini ſiccæ, ſubtiliſſime pulveriſ. an.* ʒiii. *farinæ volat.* ℥iß. *album. ovor. q. ſ.* make thereof a medicine. You may alſo adde a little turpentine, leſt it ſhould dry ſooner, or more vehemently than is neceſſary. But you muſt beware, and take great heed leſt that ſuch as were of late varous or valgous ſhould attempt or ſtraine themſelves to goe before that their joynts be confirmed, for ſo the bones that were lately ſet in their places, may ſlip aſide againe. And moreover

A plaſter to hold faſt reſtored bones.

over, untill they are able to goe without danger, let them weare high ſhooes tyed cloſe to their feet, that the bones may be ſtayed the better and more firmely in their places, but let that ſide of the ſoale of the ſhooe be underlayed whither the foote did incline before it was reſtored.

The forme of little bootes, whereof the one is open and the other ſhut.



CHAP. XII.

By what meanes armes, legs, and hands may be made by art, and placed in ſtead of the naturall armes, legs, or hands that are cut off and loſt.

Neceſſity oftentimes conſtraines us to find out the meanes whereby we may help and imitate nature, and ſupply the defect of members that are periſhed and loſt. And hereof it commeth that we may performe the functions of going, ſtanding and handling with armes and hands made by art, and undergoe our neceſſary flexions and extenſions with both of them. I have gotten the formes of all thoſe members made ſo by art, and the proper names of all the engines and inſtruments wherby thoſe artificially made are called, to my great coſt and charges, of a moſt ingenious, & excellent Smith dwelling at Paris, who is called of thoſe that know him, and alſo, of ſtrangers, by no other name than the little *Loraine*, and here I have cauſed them to bee portrayed or ſet downe, that thoſe that ſtand in neede of ſuch things, after the example of them, may cauſe ſome Smith, or ſuch like workman to ſerve them in the like caſe. They are not onely profitable for the neceſſity of the body, but alſo for the decency and comelineſſe thereof. And here followeth their formes.

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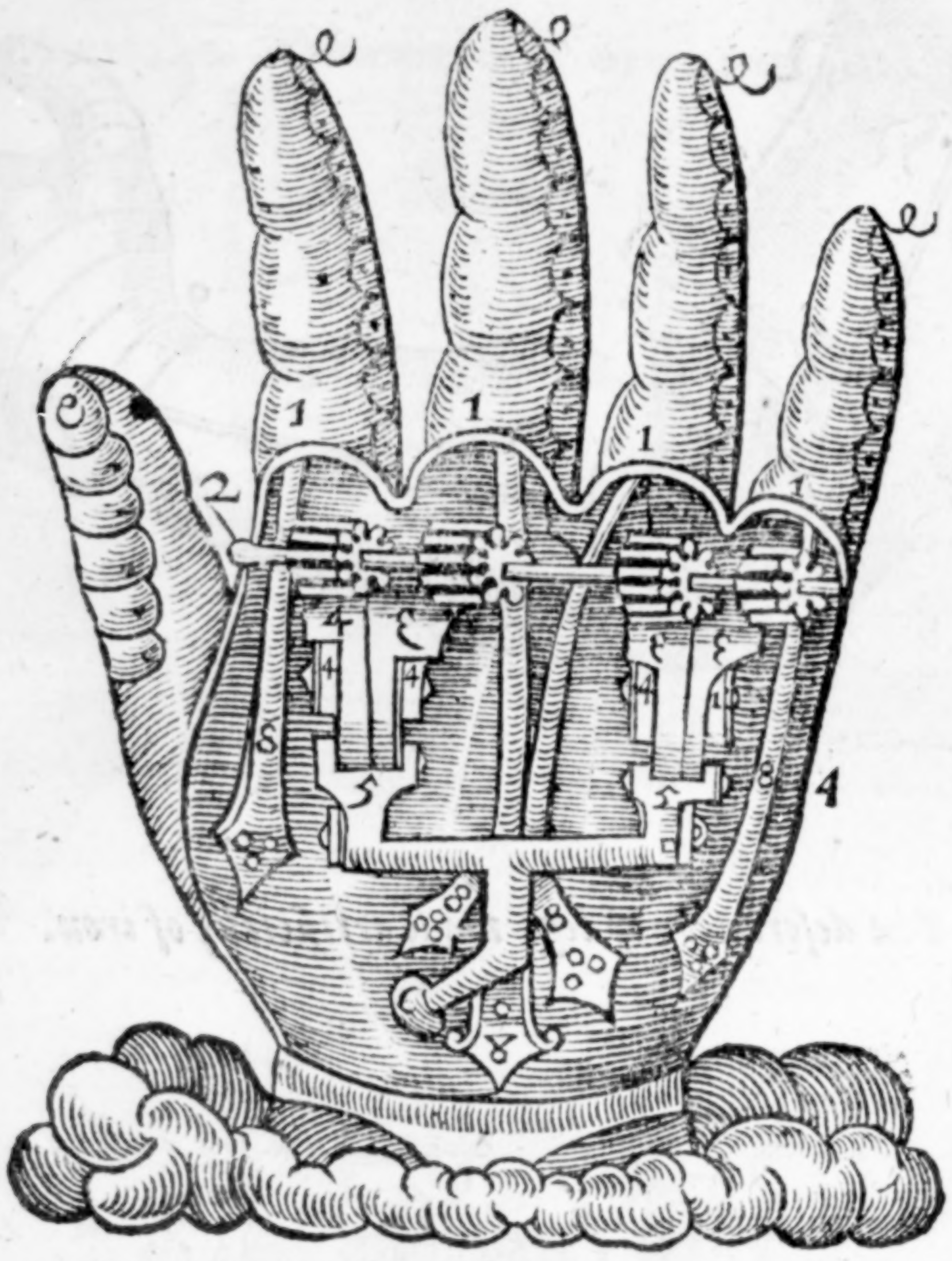
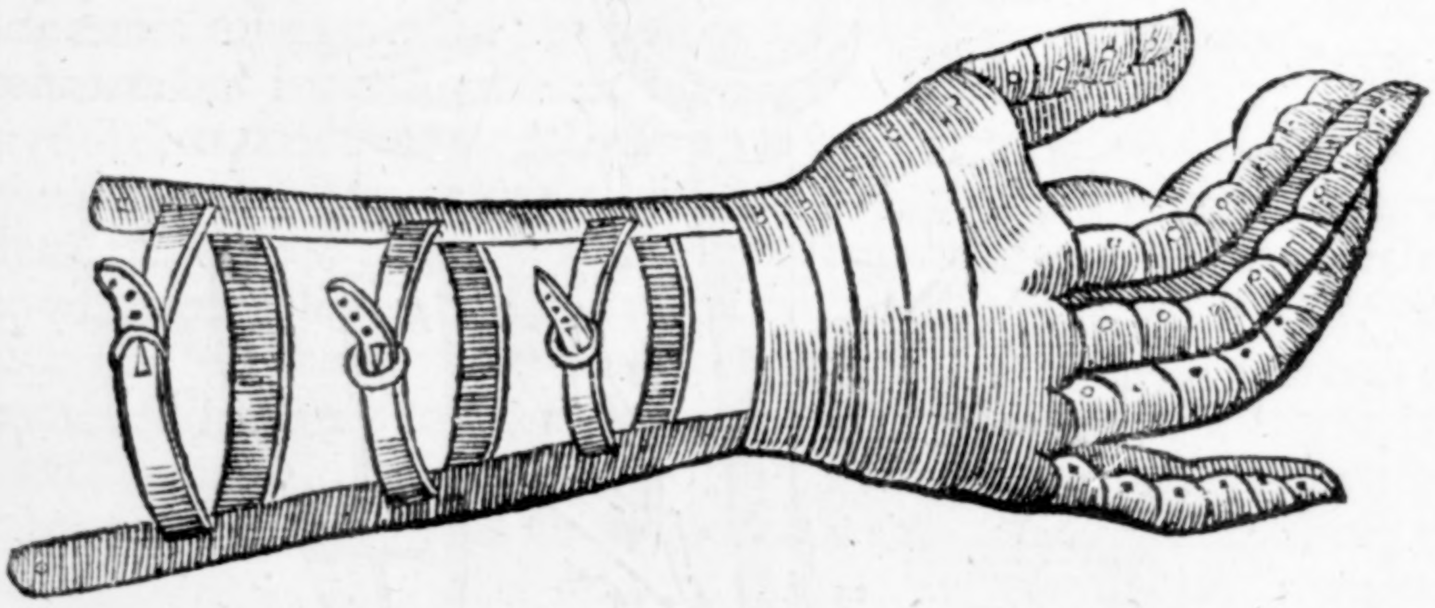
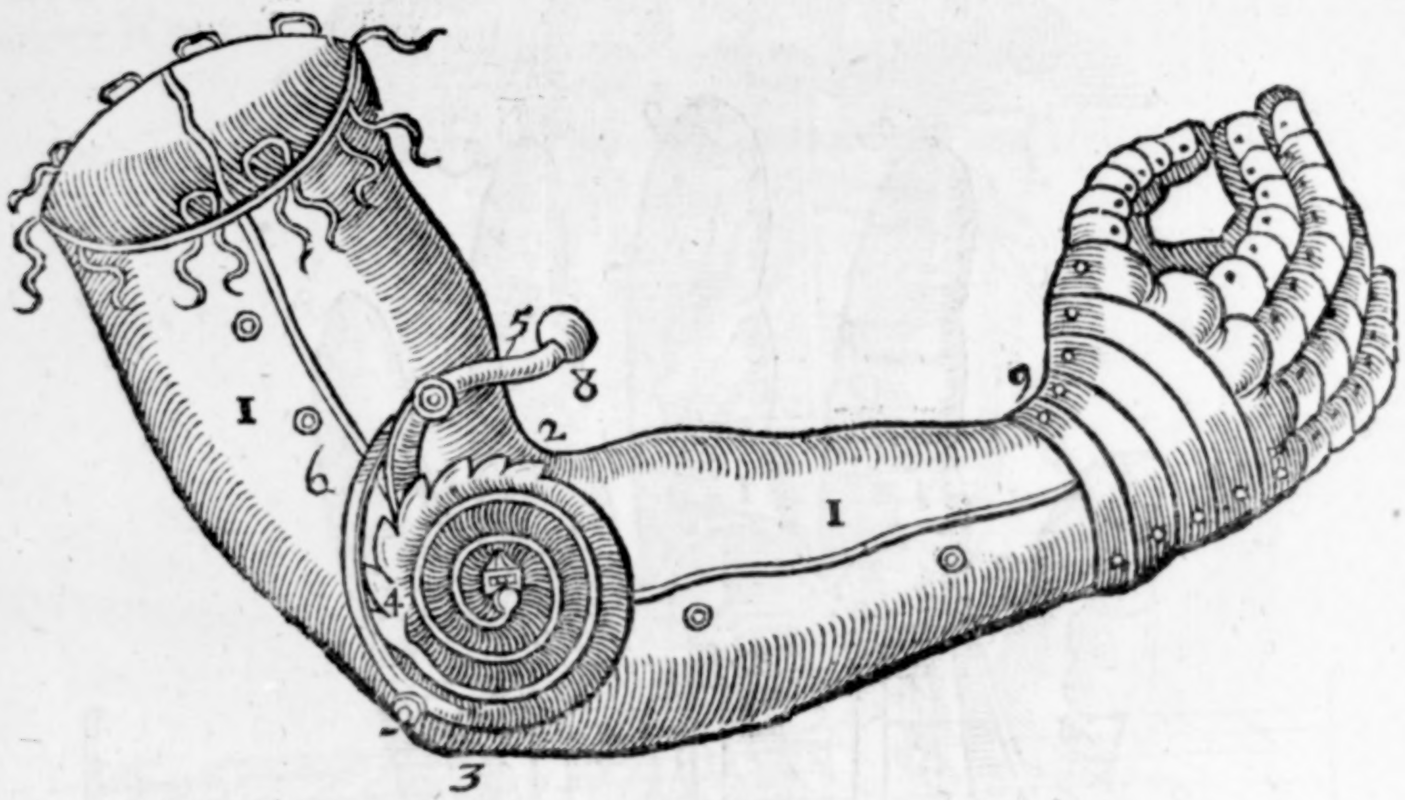
The forme of an hand made artificially of iron.



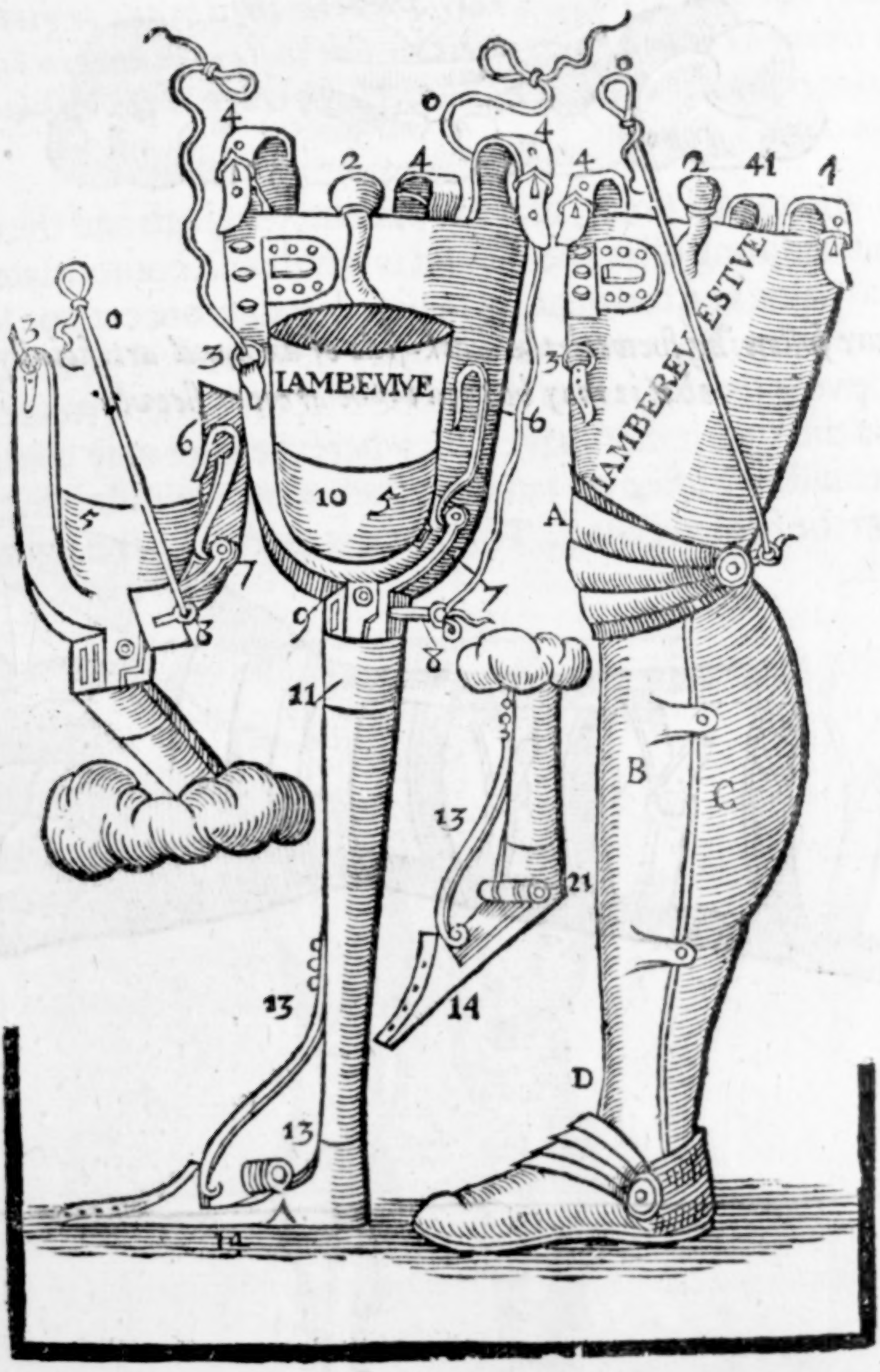
This figure following ſheweth the back-ſide of an hand artificially made, and ſo that it may be tyed to the arme or ſleeve.



The forme of an arme made of iron very artificially.



The deſcription of legs made artificially of iron.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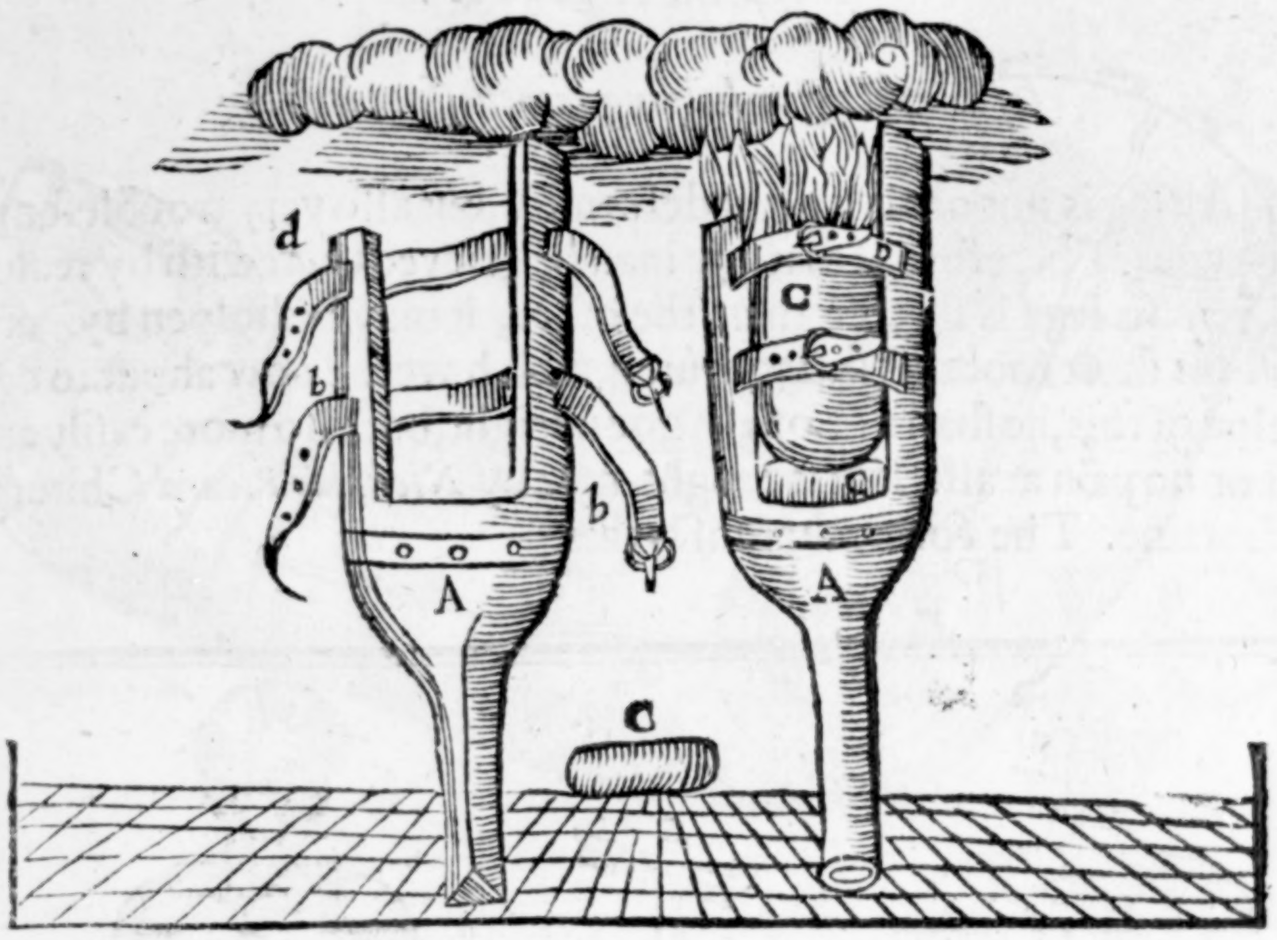
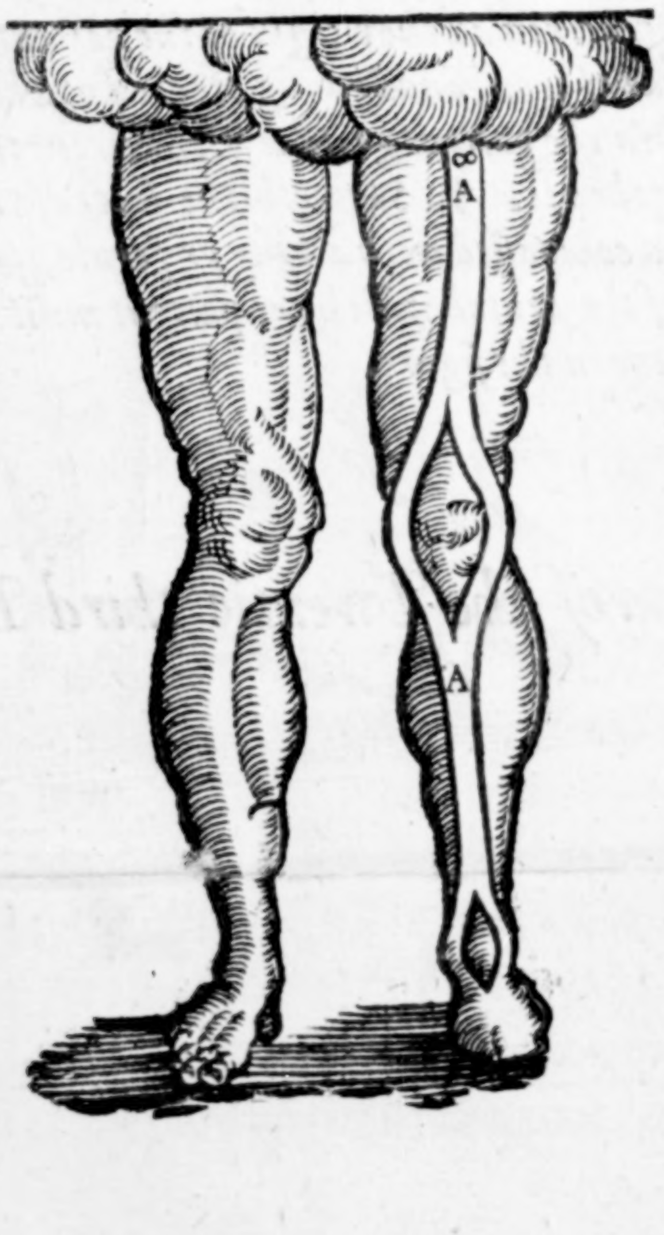
The forme of a woodden Leg made for poore men.



A. *Sheweth the ſtump or ſtock of the woodden leg.* BB. *Sheweth the two ſtayes which muſt bee on both ſides of the leg, the ſhorter of them muſt bee on the inner ſide.* CC. *Sheweth the pillow or bolſter whereon the knee muſt reſt in the bottome between the two ſtayes, that ſo it may reſt the ſofter.* DD. *Sheweth the thongs or girths with their round buckles, put through the two ſtayes on either ſide to ſtay the knee in his place firm and immoveable, that it ſlip not aſide.* E. *Sheweth the thigh it ſelfe, that you may know after what faſhion it muſt ſtand.*

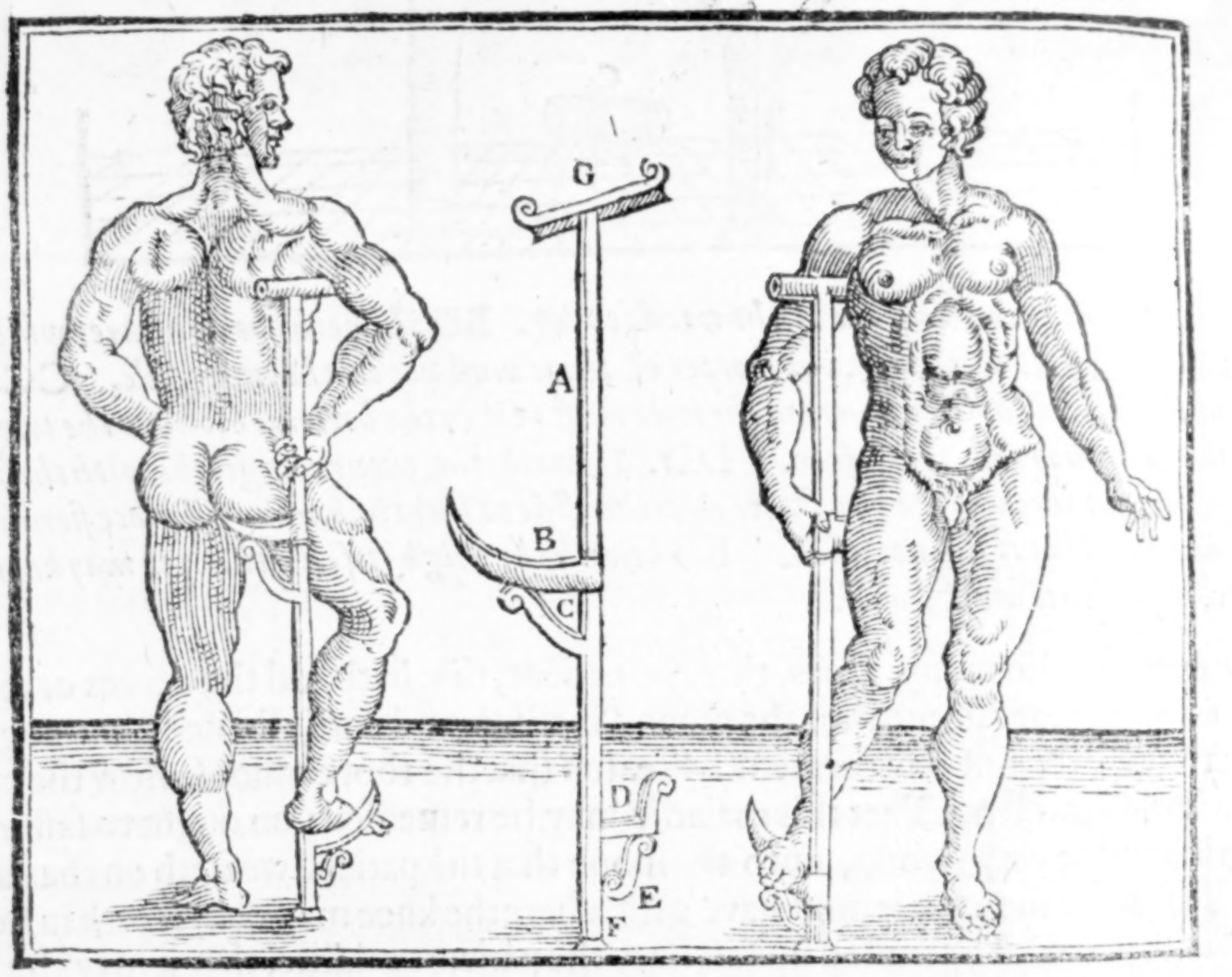
It happens alſo many times, that the patient, that hath had the nerves or tendons of his leg wounded, long after the wound is whole and conſolidated, cannot goe but with very great paine and torment, by reaſon that the foot cannot follow the muſcle, that ſhould draw it up. That this maladie, may be remedied you ought to faſten a linnen band made very ſtrong, unto the ſhooe that the patient weareth on that his pained foot, and at the knee it muſt have a ſlit where the knee may come forth in bowing of the leg, & it muſt be truſſed up faſt unto the patients middle, that it may the better lift up and erect the foot in going. This band is marked in the figure following with the letters A A.



CHAP. XIII.

Of amending or helping lameneſſe or halting.

HAlting is not onely a great deformity, but alſo very troubleſome and grievous. Therefore if that any man be grieved therewith by reaſon that one of his legs is ſhorter than the other, it may be holpen by putting under his ſhort foot this ſitting crutch, which we are now about to deſcribe. For by the helpe of this, he ſhall not onely goe upright, but alſo more eaſily and with little labour or no pain at all. It was taught mee by *Nicholas Picard* Chirurgian to the Duke of Loraine. The forme thereof is this.



A. *Sheweth the ſtaffe or ſtilt of this crutch, which muſt bee made of wood.* B. *Sheweth the ſeat of iron whereon the thigh reſteth, juſt under the buttocke.* C. *Sheweth a prop which ſtayeth up the ſeat whereon all the weight of the patients body reſteth.* D. *Sheweth the ſtirrop, being made of iron, and bowing crooked upwards, that the foot may ſtand firm, and not ſlip off it when the patient goeth.* E. *Sheweth the prop that ſtayeth or holdeth up the ſtirrop to ſtrengthen it.* F. *Sheweth the foote of the ſtilt or crutch made of iron with many pikes, and compaſſed with a ring or ferule, ſo to keepe it from ſlipping.* G. *The croſſe or head of the crutch which the patient muſt put under his arme-hole to leane upon, as it is to be ſeene in the figure.*

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OF THE GENERATION OF MAN.

The Twenty Fourth Book.

The Preface.

GOD, the Creator and maker of all things, immediately after the Creation of the world, of his unſpeakable counſell and ineſtimable wiſedome not onely diſtinguiſhed mankinde, but all other living creatures alſo, into a double ſex, to wit, of male and female; that ſo they being moved and enticed by the allurements of luſt, might deſire copulation, thence to have procreation. For this bountifull Lord hath appointed it as a ſolace unto every living creature againſt the moſt certaine & fatall neceſsity of death: that for as much as each particular living creature cannot continue for ever, yet they may endure by their ſpecies or kinde by propagation and ſucceſsion of creatures, which is by procreation, ſo long as the world endureth. In this conjunction or copulation, repleniſhed with ſuch delectable pleaſure, which God hath chiefly eſtabliſhed by the law of Matrimony, the male and female yeeld forth their ſeeds, which preſently mixed and conjoyned, are received and kept in the females wombe. For, the ſeed is a certaine ſpumous or foamie humour repleniſhed with vitall ſpirit, by the benefit whereof, as it were by a certain ebullition or fermentation it is puffed up and ſwolne bigger, and both the ſeedes being ſeparated from the more pure bloud of both the parents, are the materiall and formall beginning of the iſſue, for the ſeede of the male being caſt and received into the wombe, is accounted the principall and efficient cauſe, but the ſeede of the female is reputed the ſubjacent matter, or the matter whereon it worketh. Good and laudable ſeede ought to bee white, ſhining, clammy, knotty, ſmelling like unto the elder or palme, delectable to bees, and ſinking downe to the bottome of water being put into it, for that which ſwimmeth on the water is eſteemed unfruitfull; for a great portion commeth from the brain, yet ſome thereof falles from the whole body, & from all the parts both firme and ſoft thereof. For unleſſe it come from the whole body, & every part therof, all & every part of the iſſue cannot be formed thereby: becauſe like

The diſtinction of male and female.

The cauſe of this diſtinction.

What ſeed is.

The conditions of good ſeed.

Seed falleth from all the parts of the body.

Wherefore many diſeaſes are hereditary.

How ſeed is to be underſtood to fall from the whole body.

like things are engendered of their like: and therefore it commeth that the child reſembleth the parents, not onely in ſtature and favour, but alſo in the conformation and proportion of his lims and members, and complexion and temperature of his inward parts, ſo that diſeaſes are oft times hereditary, the weakeneſs of this or that entrall being tranſlated from the parent to the childe. There are ſome which ſuppoſe this falling of the ſeed from the whole body not to be underſtood according to the weight and matter, as if it were a certaine portion of all the blood ſeparated from the reſt; but according to the power and forme, that is to ſay the animall, naturall, and vitall ſpirits, being the framers of formation and life, and alſo the formative faculty to fall down from all the parts into the ſeed, that is wrought or perfected by the Teſticles, for proofe and confirmation whereof, they alledge that many perfect, ſound, abſolute, and well proportioned children, are borne of lame and decrepit parents.

Chap. I.

Why the generative parts are endued with great pleaſure.

What moveth a man to copulation.

Why the genitalls are endued with a whayiſh moiſture.

A Certaine great pleaſure accompanieth the function of the parts appointed for generation, and before it, in living creatures that are of a luſty age, when matter aboundeth in thoſe parts, there goeth a certaine fervent or furious deſire: the cauſes thereof are many, of which the chiefeſt is, That the kind may be preſerved and kept for ever, by the propagation and ſubſtitution of other living creatures of the ſame kinde. For brute beaſts which want reaſon, and therefore cannot bee ſolicitous for the preſervation of their kinde, never come to carnall copulation, unleſſe they be moved thereunto by a certaine vehement provocation of unbridled luſt, and as it were by the ſtimulation of venery. But man, that is endued with reaſon, being a divine and moſt noble creature, would never yeeld nor make his minde ſubject to a thing ſo abject and filthy as is carnall copulation, but that the venereous ticklings, raiſed in thoſe parts, relaxe the ſeverity of his mind, or reaſon admoniſh him that the memory of his name ought not to end with his life, but to be preſerved unto all generations, as farre as may be poſſible, by the propagation of his ſeed or iſſue. Therefore by reaſon of this profit or commodity, nature hath endued the genitall parts with a far more exact or exquiſite ſenſe than the other parts, by ſending the great ſinewes unto them, and moreover ſhe hath cauſed them to be bedewed or moiſtened with a certain whayiſh humour, not much unlike the ſeed ſent from the glandules or kernells called *proſtatæ*, ſituated in men at the beginning of the necke of the bladder, but in women at the bottome of the wombe: this moiſture hath a certaine ſharpeneſſe or biting, for that kinde of humour of all others can chiefly provoke thoſe parts to their function or office, and yeeld them a delectable pleaſure, while they are in the execution of the ſame. For even ſo whayiſh and ſharpe humours, when they are gathered together under the ſkinne, if they waxe warme, tickle with a certaine pleaſant itching, and by their motion inferre delight: but the nature of the genitall parts or members is not ſtirred up or provoked to the expulſion of the ſeed with theſe provocations of the humours, abounding either in quantity or quality onely, but a certaine great and hot ſpirit or breath conteined in thoſe parts, doth begin to dilate it ſelfe more and more, which cauſeth a certaine incredible exceſſe of pleaſure or voluptuouſneſſe, wherewith the genitalls being replete, are ſpread forth or diſtended every way unto their full greatneſſe. The yard is given to men whereby they may caſt out their ſeed directly or ſtraightly into the womans wombe, and the necke of the wombe to women, whereby they may receive that ſeed ſo caſt forth, by the open or wide mouth of the ſame necke, and alſo that they may caſt forth their owne ſeed, ſent through the ſpermaticke veſſels unto their teſticles; theſe ſpermaticke veſſels, that is to ſay, the veine lying above, and the artery lying below, do make many flexions or windings, yet one as many as the other, like unto the tendrills of vines diverſly platted or folded together, and in theſe folds or bendings the blood and ſpirit which are carryed unto the teſticles, are concocted a longer time, and ſo converted into a white ſeminall ſubſtance. The lower of theſe flexions or bowings doe end in the ſtones or teſticles. But the teſticles, for as much as they are looſe, thin, and ſpongeous or hollow, receiving the humour which was begun to be concocted in the forenamed veſſels, concoct it again themſelves: but the teſticles of men concoct the more perfectly for the procreation of the iſſue; & the teſticles of women more imperfectly, becauſe they are more cold, leſſe, weake and feeble, but the ſeed becommeth white by the contact or touch of the teſticles, becauſe the ſubſtance of them is white. The male is ſuch as engendereth in another, and the female in her ſelfe, by the ſpermaticke veſſels which are implanted in the inner capacity of the womb. But out of all doubt unleſſe nature had prepared ſo many allurements, baits, and provocations of pleaſure, there is ſcarce any man ſo hot or delighted in venereous acts, which conſidering and marking the place appointed for humane conception, the loathſomneſſe of the filth which daily falleth downe unto it, and wherewithall it is humected and moiſtened, and the vicinity and neereneſſe of the great gut under it, and of the bladder above it, but would ſhun the embraces of women. Nor would any woman deſire the company of man, which once premeditates or forethinkes with her ſelfe on the labour that ſhee ſhall ſuſtaine in bearing the burthen of her childe nine moneths, and of the almoſt deadly paines that ſhe ſhall ſuffer in her delivery.

The cauſe of the foldings of the ſpermaticke veſſels.

Womens teſticles more imperfect.

Why many men and women abhorre venereous copulation.

Men that uſe too frequent copulation, oftentimes in ſtead of ſeed caſt forth a crude and bloody humor, and ſometimes alſo meere blood it ſelfe; and oft times they can hardly make water but with great pain, by reaſon that the clammy and oily moiſture, which nature hath placed in the glandules called *proſtatæ*, to make the paſſage of the urine ſlippery, & to defend it againſt the ſharpeneſſe of the urine that paſſeth through it, is waſted, ſo that afterward they ſhal ſtand in need of the help of a Surgion to cauſe them to make water with eaſe & without pain, by injecting a little oile out of a ſiringe into the conduit of the yard. For generation it is fit the man caſt forth his ſeed into the wombe with a certaine impetuoſity, his yard being ſtiffe and diſtended, and the woman to receive the ſame without delay into her wombe, being wide open, leſt that through delay the ſeed waxe cold, and ſo become unfruitfull by reaſon that the ſpirits are diſſipated and conſumed. The yard is diſtended or made ſtiffe, when the nervous, ſpongeous, and hollow ſubſtance thereof is replete and puffed up with a flatulent ſpirit. The womb allures or drawes the maſculine ſeed into it ſelfe by the mouth thereof, and it receives the womans ſeed by the hornes from the ſpermatick veſſels, which come from the womans teſticles into the hollowneſſe or concavity of the womb, that ſo it may be tempered by conjunction, commiſtion & confuſion with the mans ſeed, and ſo reduced or brought unto a certaine equality: for generation or conception cannot follow without the concourſe of two ſeeds, well and perfectly wrought in the very ſame moment of time, nor without a laudible diſpoſition of the wombe both in temperature and complexion: if in this mixture of ſeeds the mans ſeed in quality and quantity exceed the womans, it will be a man child, if not, a woman childe, although that in either of the kindes there is both the mans and womans ſeed, as you may ſee by the daily experience of thoſe men who by their firſt wives have had boyes onely, and by their ſecond wives had girles onely: the like you may ſee in certaine women, who by their firſt husbands have had males onely, and by their ſecond husbands females onely. Moreover, one and the ſame man is not alwaies like affected to get a man or a woman childe, for by reaſon of his age, temperature and diet, hee doth ſometimes yeeld forth ſeed endued with a maſculine vertue, and ſometimes with a feminine or weake vertue, ſo that it is no marvaile if men get ſometimes men, and ſometimes women children.

Why the ſtrangury enſueth immoderate copulation.

What things neceſſary unto generation.

Why a male, & why a female is engendered.

CHAP. II.

Of what quality the ſeed is, whereof the male, and whereof the female is engendered.

Why men children are ſooner formed in the wombe than women.

The ſeed is that in power from whence each thing commeth or floweth.

Why the children are moſt commonly like unto their fathers.

When children ſhould be begotten.

Why often times the child reſembleth the Grand father.

Why ſometime thoſe that are diſeaſed do get ſound children.

MAle children are engendered of a more hot and dry ſeed, and women of a more cold and moiſt: for there is much leſſe ſtrength in cold than in heat, and likewiſe in moiſture than in dryneſſe; and that is the cauſe why it will be longer before a girle is formed in the womb than a boy. In the ſeed lyeth both the procreative and the formative power: as for example; In the power of the Melon ſeed are ſituate the ſtalkes, branches, leaves, flowers, fruite, the forme, colour, ſmell, taſte, ſeed and all. The like reaſon is of other ſeeds; ſo Apple grafts engrafted in the ſtock of a Peare tree, beare Apples; and we doe alwaies finde and ſee by experience, that the tree (by vertue of grafting) that is grafted, doth convert it ſelfe into the nature of the Sions wherewith it is grafted. But although the childe that is borne doth reſemble or is very like unto the father or the mother, as his or her ſeed exceedeth in the mixture, yet for the moſt part it happeneth that the children are more like unto the father than the mother, becauſe that in the time of copulation, the minde of the woman is more fixed on her husband, than the minde of the husband on, or towards his wife: for in the time of copulation or conception, the formes, or the likeneſſes of thoſe things that are conceived or kept in minde, are tranſported and impreſſed in the childe or iſſue; for ſo they affirme that there was a certain Queene of the Æthiopians who brought forth a white child, the reaſon was (as ſhe confeſſed) that at the time of copulation with her King, ſhe thought on a marvellous white thing, with a very ſtrong imagination. Therefore *Heſiod* advertiſeth all married people not to give them ſelves to carnall copulation when they return from burialls, but when they come from feaſts and plaies, leſt that their ſad, heavie, and penſive cogitations, ſhould bee ſo transfuſed and engrafted in the iſſue, that they ſhould contaminate or infect the pleaſant joyfulneſſe of his life, with ſad, penſive and paſſionate thoughts. Sometimes it happeneth, although very ſeldome, the childe is neither like the father nor the mother, but in favour reſembleth his Grandfather, or any other of his kindred, by reaſon that in the inward parts of the parents, the engrafted power and nature of the grandfather lieth hidden: which when it hath lurked there long, not working any effect, at length breakes forth by means of ſome hidden occaſion: wherein nature reſembleth the Painter, making the lively portraiture of a thing, which as far as the ſubject matter will permit, doth forme the iſſue like unto the parents in every habit; ſo that often times the diſeaſes of the parents are transferred or participated unto the children, as it were by a certaine hereditary title: for thoſe that are crooke-backt get crooke-backt children, thoſe that are lame, lame; thoſe that are leprous, leprous; thoſe that have the ſtone, children having the ſtone; thoſe that have the ptiſicke, children having the ptiſick; and thoſe that have the gout, children having the gout: for the ſeed followes the power, nature, temperature, and complexion of him that engendereth it. Therefore of thoſe that are in health and ſound, healthy and ſound; and of thoſe that are weake and diſeaſed, weake and diſeaſed children are begotten, unleſſe happely the ſeed of one of the parents that is ſound doth correct or amend the diſeaſed impreſſion of the other that is diſeaſed, or elſe the temperate and ſound wombe as it were by the gentle and pleaſant breath thereof.

CHAP.

Chap. III.

What is the cauſe why the Females of all brute beaſts, being great with young, doe neither deſire, nor admit the males, untill they have brought forth their Young.

Why the ſenſe of venereous acts is given to brute beaſts.

THe cauſe hereof is, that, foraſmuch as they are moved by ſenſe only, they apply themſelves unto the thing that is preſent, very little, or nothing at all perceiving things that are paſt, and to come. Therfore after they have conceived, they are unmindfull of the pleaſure that is paſt, and doe abhor copulation: for the ſenſe or feeling of luſt is given unto them by nature, onely for the preſervation of their kinde, and not for voluptuouſneſſe, or delectation. But the males raging, ſwelling, and as it were ſtimulated by the provocations of the heat, or fervency of their luſt, do then runne unto them, follow and deſire copulation, becauſe a certaine ſtrong odour or ſmell commeth into the aire from their ſecret or genitall parts, which pierceth into their noſtrills, and unto their braine, and ſo inferreth an imagination, deſire, and heat. Contrariwiſe, the ſenſe and feeling of venereous actions ſeemeth to be given by nature to women, not onely for the propagation of iſſue and for the conſervation of mankinde, but alſo to mitigate and aſſwage the miſeries of mans life, as it were by the entiſements of that pleaſure: alſo the great ſtore of hot blood that is about the heart, wherewith men abound, maketh greatly to this purpoſe, which by impulſion of imagination, which ruleth the humours, being driven by the proper paſſages, downe from the heart and entralls into the genitall parts, doth ſtirre up in them a new luſt.

Why of brute beaſts, the males raging with luſt, follow after the females.

Wherefore a woman when ſhe is with childe, deſireth copulation.

The males of brute beaſts, being provoked or moved by the ſtimulations of luſt, rage, and are almoſt burſt with a *Tentigo* or extenſion of the genitall parts, and ſometimes waxe mad, but after that they have ſatisfied their luſt with the female of their kinde, they preſently become gentle, and leave off ſuch fierceneſſe.

Chap. IIII.

What things are to be obſerved, as neceſſary unto generation in the time of copulation.

How women may be moved to venery and conception.

WHen the husband commeth into his wives chamber hee muſt entertaine her with all kinde of dalliance, wanton behaviour, and allurements to venery: but if he perceive her to be ſlow, and more cold, he muſt cheriſh, embrace, and tickle her, and ſhall not abruptly, the nerves being ſuddenly diſtended, breake into the field of nature, but rather ſhall creepe in by little and little, intermixing more wanton kiſſes with wanton words and ſpeeches, handling her ſecret parts and dugs, that ſhe may take fire and bee enflamed to venery, for ſo at length the wombe will ſtrive and waxe fervent with a deſire of caſting forth its owne ſeed, and receiving the mans ſeed to bee mixed together therewith. But if all theſe things will not ſuffice to enflame the woman, for women for the moſt part are more ſlow and ſlack unto the expulſion or yeelding forth of their ſeed, it ſhall be neceſſary firſt to foment her ſecret parts with the decoction of hot herbes made with Muſcadine, or boiled in any other good wine, and to put a little muske or civet into the neck or mouth of the wombe: and when ſhee ſhall perceive the efflux of her ſeed to approach, by reaſon of the tickling pleaſure, ſhee muſt advertiſe her husband thereof, that at the very inſtant time or moment, hee may alſo yeeld forth his ſeed, that by the concourſe or meeting of the ſeeds, conception may be made, and ſo at length a child formed and borne. And that it may have the better ſucceſſe, the husband muſt not preſently ſeparate himſelfe from his wives embraces, leſt the aire ſtrike into the open wombe, and

The meeting of the ſeeds moſt neceſſary for generation.

and ſo corrupt the ſeeds before they are perfectly mixed together. When the man departs, let the woman lye ſtill in quiet, laying her legges or her thighes acroſſe, one upon another, and raiſing them up a little, leſt that by motion or downeward ſituation, the ſeed ſhould be ſhed or ſpilt: which is the cauſe why ſhe ought at that time not to talk, eſpecially chiding, nor to cough, nor ſneeſe, but give herſelfe to reſt and quietneſſe, if it be poſſible.

CHAP. V.

By what ſignes it may bee knowne whether the woman have conceived or not.

If the ſeed in the time of copulation, or preſently after be not ſpilt, if in the meeting of the ſeedes the whole body doe ſomewhat ſhake, that is to ſay, the wombe drawing it ſelfe together for the compreſſion & entertainment therof, if a little feeling of pain doth runne up and downe the lower belly and about the navell, if ſhee be ſleepy, if ſhe loath the embracings of a man, and if her face bee pale, it is a token that ſhe hath conceived.

Spots or ſpecks in the faces of thoſe that are with childe.

In ſome, after conception ſpots or freckles ariſe in their face, their eyes are depreſſed and ſunke in, the white of their eyes waxeth pale, they waxe giddy in the head, by reaſon that the vapours are raiſed up from the menſtruall blood that is ſtopped, ſadneſſe & heavineſſe grieve their mindes, with loathing and waywardneſſe, by reaſon that the ſpirits are covered with the ſmoaky darkeneſſe of the vapoures: paines in the teeth and gummes, and ſwouning often times commeth, the appetite is depraved or overthrown, with aptneſſe to vomit, and longing, whereby it happeneth that they loath meats of good juice, and long for and deſire illaudable meates, and thoſe that are contrary to nature, as coales, dirt, aſhes, ſtinking ſalt-fiſh, ſowre, auſtere and tart fruits, pepper, vinegar, and ſuch like acride things, and other, altogether contrary to nature and uſe, by reaſon of the condition of the ſuppreſſed humour abounding & falling into the orifice of the ſtomack. This appetite ſo depraved or overthrown, endureth in ſome untill the time of childe-birth; in others it commeth in the third moneth after their conception, when haires do grow on the childe, and laſtly it leaveth them a little before the fourth moneth, becauſe that the child, being now greater and ſtronger, conſumes a great part of the excrementall and ſuperfluous humour. The ſuppreſſed or ſtopped tearms in women that are great with childe, are divided into three parts: the more pure portion maketh the nutriment for the childe, the ſecond aſcendeth by little and little into the dugs, and the impureſt of all remaineth in the womb about the infant, and maketh the ſecundine or after-birth, wherein the infant lieth as in a ſoft bed. Thoſe women are great with child whoſe urine is more ſharpe, fervent, and ſomewhat bloody, the bladder not only waxing warme by the compreſſion of the wombe, fervent by reaſon of the blood conteined in it, but alſo the thinner portion of the ſame blood being expreſſed, and ſweating out into the bladder. A ſwelling and hardneſſe of the dugs, and veines that are under the dugs in the breaſtes and about them, and milke comming out when they are preſſed, with a certaine ſtirring motion in the belly, are certaine infallible ſignes of greatneſſe with childe. Neither in this greatneſſe of childe bearing, the veines of the dugges onely, but of all the whole body, appeare full and ſwelled up, eſpecially the veines of the thighes and legges, ſo that by their manifold folding and knitting together, they do appeare varicous, whereof commeth ſluggiſhneſſe of the whole body, heavineſſe & impotency or difficulty of going, eſpecially when the time of deliverance is at hand. Laſtly, if you would know whether the woman have conceived or not, give unto her when ſhe goeth to ſleepe, ſome meed or honyed water to drink, and if ſhe have a griping in her guts or belly, ſhe hath conceived, if not, ſhe hath not conceived.

Why many women being great with childe refuſe laudable meates, and deſire thoſe that are illaudable & contrary to nature.

The ſuppreſſed tearmes divided into three parts.

Hip. 1. de morb. mul.

Aph. 41. ſect. 5.

CHAP. VI.

That the wombe, ſo ſoone as it hath received the ſeede, is preſently contracted or drawne together.

After that the ſeeds of the male and female have both met, and are mixed together in the capacity of the wombe, then the orifice thereof doth draw it ſelfe cloſe together, leſt the ſeedes ſhould fall out. There the females ſeede goeth and turneth into nutriment and the encreaſe of the males ſeede, becauſe all things are nouriſhed and doe encreaſe by thoſe things that are moſt familiar and like unto them. But the ſimilitude and familiarity of ſeede with ſeede is farre greater than with bloud, ſo that when they are perfectly mixed and coagulated, and ſo waxe warme by the ſtraight and narrow incloſure of the wombe, a certaine thinne skinne doth grow about it, like unto that that will bee over unſcimmed milke.

Why the female ſeede is nutriment for the male ſeed.

Moreover, this concretion or congealing of the ſeede, is like unto an egge layed before the time that it ſhould: that is to ſay, whoſe membrane or tunicle that compaſſeth it about, hath not as yet encreaſed or growne into a ſhelly hardneſſe about it; in folding-wiſe are ſeene many ſmall threads dividing themſelves, over-ſpread with a certaine clammy, whitiſh or red ſubſtance, as it were with blacke bloud. In the middeſt under it appeareth the navell, from whence that ſmall skinne is produced. But a man may underſtand many things that appertaine unto the conception of mankinde by the obſervation of twenty egges, ſetting them to bee hatched under an Henne, and taking one every day and breaking it, and diligently conſidering it; for in ſo doing, on the twentieth day you ſhall finde the Chicke perfectly formed with the navell. That little skin that ſo compaſſeth the infant in the wombe is called the ſecundine or *Chorion*, but commonly the after-birth.

A compendious way to underſtand humane conception.

This little skinne is perfectly made within ſixe dayes, according to the judgment of *Hippocrates*, as profitable and neceſſary not onely to containe the ſeeds ſo mixed together, but alſo to ſucke nutriment through the orifices of the veſſels ending in the wombe. Thoſe orifices the Greekes doe call *Cotyledones*, and the Latines *Acetabula*, for they are as it were hollowed eminences, like unto thoſe, which may bee ſeene in the feete or ſnout of a Cuttle fiſh many times in a double order, both for the working and holding of their meate. Thoſe eminences called *Acetabula* doe not ſo greatly appeare in women as in many brute beaſts. Therefore by theſe the ſecundine cleaveth on every ſide unto the wombe, for the conſervation, nutrition, and encreaſe of the conceived ſeede.

Lib. de nat. puer.

What the Cotyledones are.

CHAP. VII.

Of the generation of the navell.

After the woman hath conceived, to every one of the aforeſaid eminencies groweth preſently another veſſell, that is to ſay, a veine to the veine, and an artery to the artery: theſe ſoft and yet thin veſſels, are framed with a little thin membrane, which being ſpread under, ſticketh to them, for to them it is in ſtead of a membrane, and a ligament and a tunicle or a defence, and it is doubled with the others, and made of the veine and artery of the navell, to compaſſe the navell. Theſe new ſmall veſſels of the infant, with their orifices, doe anſwer directly one to one to the cotyledones or eminences of the womb, they are very ſwall and little, as it were the hairy fibres that grow upon roots that are in the earth, and when they have continued ſo a longer time, they are combined together, that of two they are made one veſſell; until that by continuall connexion, all thoſe veſſels go and degenerate into two other great veſſels, called the umbi-

The veine never joyneth it ſelfe with the artery.

licall veſſels, or the veſſels of the navell, becauſe they do make the navell, and do enter into the childs body by the hole of the navell. Here *Galen* doth admire the ſingular providence of God and Nature, becauſe that in ſuch a multitude of veſſels, and in ſo long a paſſage or length that they go or are produced, the vein doth never confound it ſelfe nor ſtick to the artery, nor the artery to the veine, but every veſſell joyneth it ſelfe to the veſſell of its owne kinde. But the umbilicall veine or navell veine, entering into the body of the child, doth joyne it ſelf preſently to the hollow part of the liver, but the artery is divided into two, which joine themſelves to the two iliack arteries along the ſides of the bladder, & are preſently covered with the *peritonæum*, & by the benefit thereof are annexed unto the parts which it goes unto. Thoſe ſmall veines and arteries are as it were the rootes of the child, but the veine and artery of the navell are as it were the body of the tree, to bring down the nutriment to nouriſh the child. For firſt we live in the wombe the life of a plant, and then next the life of a ſenſitive creature; and as the firſt tunicle of the child is called *Chorion* or *Allantoides*, ſo the other is called *Amnios* or *Agnina*, which doth compaſſe the ſeed or child about on every ſide. Theſe membranes are moſt thin, yea for their thinneſſe like unto the ſpiders web, woven one upon another, and alſo connexed in many places by the extremities of certaine ſmall and hairy ſubſtances, which at length by the adjunction of their like do get ſtrength; wherby you may underſtand, what is the cauſe why by divers and violent motions of the mother in going and dancing or leaping, and alſo of the infant in the wombe, thoſe membranes are not almoſt broken. For they are ſo conjoyned by the knots of thoſe hairie ſubſtances, that betweene them nothing, neither the urine nor the ſweate can come, as you may plainely and evidently perceive in the diſſection of a womans body that is great with child, not depending on any other mans opinion, be it never ſo old or inveterate: yet the ſtrength of thoſe membranes is not ſo great but that they may bee ſoone broken in the birth by the kicking of the child.

Hippocrates calleth all the membranes that compaſſe the infant in the wombe, according to the judgement of *Galen* in his booke *de uſu partium*, by the name of the ſecundines.

Chap. VIII.

Of the umbilicall veſſels, or the veſſels belonging to the navell.

An old opinion confuted.

Many of the ancient Writers have written that there are five veſſels found in the navell. But yet in many, nay all the bodies I ſought in for them, I could never finde but three, that is to ſay, one veine, which is very large, ſo that in the paſſage thereof it will receive the tagge of a poynt, and two arteries, but not ſo large, but much narrower, becauſe the childe wanteth or ſtandeth in need of much more bloud for his conformation and the nutriment or increaſe of his parts, than of vitall ſpirit.

To what uſe the knots of the childs navell in the wombe ſerveth.

Theſe veſſels making the body of the navell, which, as it is thought, is formed within nine or tenne dayes, by their doubling and folding, make knots like unto the knots of a Franciſcan Friers girdle, that ſtaying the running bloud in thoſe their knotty windings, they might more perfectly concoct the ſame: as may be ſeene in the ejaculatory ſpermatick veſſels, for which uſe alſo the length of the navell is halfe an ell, ſo that in many infants that are ſomewhat growne, is is found three or foure times doubled about their neck or thigh.

The child in the wombe taketh his nutriment by his navell, not by his mouth.

How the child breatheth.

As long as the childe is in his mothers wombe, hee taketh his nutriment onely by the navell, and not by his mouth, neither doth hee enjoy the uſe of eyes, eares, noſtrils or fundament, neither needeth hee the functions of the heart. For ſpirituous bloud goeth unto it by the arteries of the navell, and into the iliack arteries, and from the iliack arteries unto all the other arteries of the whole body, for by the motion of theſe onely the infant doth breathe. Therefore it is not to bee ſuppoſed that aire is carryed or drawne in by the lungs unto the heart, in the body of the childe, but contrariwiſe from the heart to the lungs. For neither the heart doth performe the generation or working of bloud, or of the vitall ſpirits. For the iſſue or infant is contented

tented with them as they are made and wrought by his mother. Which, untill it hath obtained a full, perfect and whole deſcription of his parts and members, cannot be called a child, but rather an embrion, or an imperfect ſubſtance.

CHAP. IX.

Of the ebullition or ſwelling of the ſeed in the wombe, and of the concretion of the bubbles or bladders, or the three principall entralls.

IN the ſixe firſt dayes of conception the new veſſels are thought to bee made and brought forth of the eminences or cotylidons of the mothers veſſels, and diſperſed into all the whole ſeede, as they were fibres or hairy ſtrings. Thoſe as they pierce the wombe, ſo do they equally and in like manner penetrate the tunicle *Chorion.* And it is carried this way, being a paſſage not only neceſſary for the nutriment and conformation of the parts, but alſo into the veines diverſly woven and diſperſed into the skin *Chorion.* For thereby it commeth to paſſe that the ſeed it ſelfe boileth, and as it were fermenteth or ſwelleth, not onely through occaſion of the place, but alſo of the bloud and vitall ſpirits that flow unto it, and then it riſeth into the bubbles or bladders, like unto the bubbles which are occaſioned by the raine falling into a river or channell full of water. Theſe three bubbles or bladders, are certain rude or new formes or concretions of the three principall entrals, that is to ſay, of the liver, heart and braine. All this former time it is called ſeed, and by no other name; but when thoſe bubbles ariſe, it is called an embrion, or the rude forme of a body untill the perfect conformation of all the members: on the fourth day after that the veine of the navell is formed, it ſucketh groſſer bloud, that is, of a more fuller nutriment out of the Cotylidons. And this bloud, becauſe it is more groſſe, eaſily congeales & curdles in that place, where it ought to prepare the liver fully & abſolutely made. For then it is of a notable great bigneſſe above all the other parts, & therfore it is called *parenchyma*, becauſe it is but only a certain congealing or concretion of bloud brought together thither or in that place. From the gibbous part thereof ſpringeth the greater part or trunke of the hollow veine, called commonly *vena cava*, which doth diſperſe his ſmall branches, which are like unto haires, into alſo the ſubſtance thereof: and then it is divided into two branches, whereof the one goeth upwards, the other downwards unto all the particular parts of the body.

The three bladders.

When the ſeede is called an embrion.

Why the liver is called *Parenchyma.*

In the meane ſeaſon the Arteries of the navell ſuck ſpirituous bloud out of the eminences or Cotylidons of the mothers arteries, whereof, that is to ſay, of the more fervent and ſpirituous bloud, the heart is formed in the ſecond bladder or bubble, being endued with a more fleſhy, ſound and thicke ſubſtance, as it behooveth that veſſell to bee, which is the fountaine from whence the heate floweth, and hath a continuall motion.

In this the vertue formative hath made two hollow places, one on the right ſide, another on the left. In the right, the root of the hollow veine is infixed or ingraffed, carrying thither neceſſary nutriment for the heart; in the left is formed the ſtamp or roote of an artery, which preſently doth divide it ſelfe into two branches, the greater whereof goeth upwards to the upper parts, and the wider unto the lower parts, carrying unto all the parts of the body life and vitall heat.

CHAP. X.

Of the third bubble or bladder, wherein the head and the braine is formed.

Why the greater portion of ſeed goeth into generation of the head and braine.

THe farre greater portion of the ſeede goeth into this third bubble, that is to ſay, yeelding matter for the conformation of the braine and all the head. For a greater quantity of ſeede ought to goe unto the conformation of the head and braine, becauſe theſe parts are not ſanguine or bloudy as the heart and liver, but in a manner without bloud; bonie, marrow, cartilaginous, nervous and membranous, whoſe parts, as the veines, arteries, nerves, ligaments, panicles, and ſkinne, are called ſpermaticke parts, becauſe they obtaine their firſt conformation almoſt of ſeede onely: although that afterwards they are nouriſhed with bloud, as the other fleſhy and muſculous parts are. But yet the bloud when it is come unto thoſe parts, degenerateth and turneth into a thing ſomewhat ſpermatick, by vertue of the aſſimulative faculty of thoſe parts. All the other parts of the head, forme and faſhion themſelves unto the forme of the braine when it is formed, and thoſe parts which are ſituated and placed about it for defence eſpecially, are hardened into bones.

Why the head is placed on the top of the body.

The head as the ſeate of the ſenſes, and manſion of the minde and reaſon, is ſituated in the higheſt place, that from thence, as it were from a lofty tower or turret, it might rule and governe all the other members and their functions and actions, that are under it, for there the ſoule or life which is the rectreſſe or governeſſe is ſituated; and from thence it floweth and is diſperſed into all the whole body. Nature hath framed theſe three principall entrals as proppes and ſuſtentations for the weight of all the reſt of the body: for which matter alſo ſhee hath framed the bones.

The firſt bones that appeare to bee formed, or are ſuppoſed to be conformed, are the bones called *oſſa Ilium*, connexed or united by ſpondils that are betweene them: then all the other members are framed & proportioned by their concavities & hollowneſſes, which generally are ſeaven, that is to ſay, two of the eares, two of the noſe, one of the mouth, and in the parts beneath the head, one of the fundament, and another of the yard or conduit of the bladder; and furthermore in women, one of the necke of the wombe, without the which they can never bee made mothers or beare children.

When all theſe are finiſhed, nature, that ſhee might poliſh her excellent worke in all ſorts, hath covered all the body and every member thereof with ſkinne. Into this excellent work or *Microcoſmos* ſo perfected, God, the author of nature and all things, infuſeth or ingrafteth a ſoule or life: which St. *Auguſtine* proveth by this ſentence of *Moſes*: If any man ſmite a woman with child, ſo that thereby ſhe be delivered before her naturall time, and the child bee dead, being firſt formed in the wombe, let him die the death: but if the child hath not as yet obtained the full proportion and conformation of his body and members, let him recompence it with mony. Therefore it is not to bee thought that the life is derived, propagated or taken from *Adam* or our parents, as it were an hæreditary thing diſtributed unto all mankinde by their parents; but we muſt believe it to be immediately created of God, even at the very inſtant time when the child is abſolutely perfected in the lineaments of his body, and ſo given unto it by him.

Exod. 20. *qu.* 52.

The *mola* in the wombe liveth not as the child.

So therefore the rude lumpes of fleſh called *molæ* that engender in womens wombes, and monſters of the like breeding and confuſed bigneſſe, although by reaſon of a certaine quaking and ſhivering motion, they ſeeme to have life, yet they cannot bee ſuppoſed to bee endued with a life or a reaſonable ſoule: but they have their motion, nutriment and increaſe wholly of the naturall and infixed faculty of the wombe, and of the generative or procreative ſpirit that is engraffed naturally in the ſeed.

But even as the infant in the wombe obtaineth not perfect conformation before the thirtieth day, ſo likewiſe it doth not move before the ſixtieth day: at which

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time it is moſt commonly not perceived by women, by reaſon of the ſmallneſſe of the motion. But now let us ſpeake briefly of the life or ſoule, wherein conſiſteth the principall originall of every function in the body, and likewiſe of generation.

Chap. XI.

Of the life or ſoule.

THE ſoule entreth into the body, ſo ſoone as it hath obtained a perfect and abſolute diſtinction and conformation of the members in the wombe: which in male children, by reaſon of the more ſtrong and forming heate which is engraffed in them, is about the fortieth day, and in females about the forty fifth day, in ſome ſooner, and in ſome later, by reaſon of the efficacy of the matter working, and plyantneſſe or obedience of the matter whereon it worketh. Neither doth the life or ſoule being thus inſpired into the body preſently execute or performe all his functions, becauſe the inſtuments that are placed about it cannot obtaine a firme and hard conſiſtence neceſſary for the lively, but eſpecially for the more divine miniſteries of the life or ſoule, but in a long proceſſe of age or time.

The life goeth not into the maſſe of ſeed that doth engender the child, before the body of the child and each part thereof hath his perfect proportion and forme.

Why the life or ſoule doth not preſently execute all his offices.

Thoſe inſtruments of the ſoule are vitiated either in the firſt conformation, as when the forme or faſhion of the head is ſharpe upwards or piramydall, as was the head of *Therſites*, that lived in the time of the Trojan warre, and of *Triboulet* and *Tonin*, that lived in later yeares; or alſo by ſome caſualty, as by the violent handling of the mydwife, who by compreſſion, by reaſon that the ſcull is then tender and ſoft, hath cauſed the capacity of the ventricles that be under the braine to be too narrow for them: or by a fall, ſtroake, diſorder in diet, as by drunkenneſſe, or a feaver, which inferreth a lithargie, exceſſive ſleepineſſe, or a phrenſie.

Preſently after the ſoule is entred the body, God endueth it with divers and ſundry gifts: hereof it commeth that ſome are endued with wiſedome by the ſpirit; others with knowledge by the ſame ſpirit; others with the gift of healing by the ſame ſpirit; others with power, dominion and rule; others with propheſie; others with diverſities of tongues; and to others other endowments, as it hath pleaſed the divine providence and bounty of God to beſtow upon them, againſt which no man ought to contend or ſpeake. For it is not meet that the thing formed ſhould ſay unto him that formed it, why haſt thou made mee on this faſhion? hath not the Potter power to make of the ſame lumpe of clay one veſſell to honour and another to diſhonour? it is not my purpoſe, neither belongeth it unto mee or any other humane creature to ſearch out the reaſon of thoſe things, but onely to admire them with all humility: But yet I dare affirme this one thing, that a noble and excellent ſoule neglecteth elementary and tranſitory things, and is raviſhed and moved with the contemplation of celeſtiall, which it cannot freely enjoy before it bee ſeparated from this earthly encloſure or priſon of the body, and be reſtored unto its originall.

1 *Cor.c.12.*

Therefore the ſoule is the inward *Entelechia* or perfection, or the primative cauſe of all motions and functions both naturall and animall, and the true forme of man. The Ancients have endeavoured to expreſſe the obſcure ſenſe thereof by many deſcriptions. For they have called it a celeſtiall ſpirit, and a ſuperiour, incorporeall, inviſible, an immortall eſſence, which is to bee comprehended of its ſelfe alone, that is, of the minde or underſtanding. Others have not doubted but that wee have our ſoules inſpired by the univerſall divine minde, which as they are alive, ſo they doe beſtow life on the bodies unto whom they are annexed or united. And although this life bee diſperſed into all the whole body, and into every portion of the ſame, yet is it voyd of all corporall weight or mixtion, and it is wholly and alone in every ſeverall part, being ſimple and indiviſible, without all compoſition or mixture, yet endued with many vertues and faculties, which it doth utter in divers

What the ſoule or life is.

The life is in all the whole body, and in every portion thereof.

The life or ſoule is ſimple and indiviſible.

parts of the body: For it feeleth, imagineth, judgeth, remembreth, underſtandeth, and ruleth all our deſires, pleaſures and animall motions; it ſeeth, heareth, ſmelleth, taſteth, toucheth: and it hath divers names of theſe ſo many and ſo great functions which it performeth in divers parts of the body. It is called the ſoule or life, becauſe it maketh the body live, which of it ſelfe is dead. It is called the ſpirit or breath, becauſe it inſpireth our bodies. It is called reaſon, becauſe it diſcerneth truth from falſhood, as it were by a certaine divine rule. It is termed the minde, becauſe it is mindfull of things paſt, in recalling and remembring them: and it is called the vigour or courage, becauſe it giveth vigour and courage to the ſluggiſh weight or maſſe of the body. And laſtly it is called the ſenſe & underſtanding, becauſe it comprehendeth things that are ſenſible and intelligible. Becauſe it is incorporeall it cannot occupie a place by corporeall extenſion, although notwithſtanding it filleth the whole body. It is ſimple, becauſe it is but one in eſſence, not encreaſed nor diminiſhed: for it is no leſſe in a Dwarfe than in a Gyant, and it is like perfect and great in an infant as in a man, according to its owne nature.

Divers names, and the reaſon of divers names that are given to humane formes.

Three kinds of living bodies.

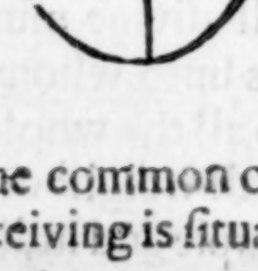
The ſuperiour ſoule containeth in it ſelfe all the powers of the inferiour.

But there are three kindes of bodies informed by a ſoule whereby they live: the firſt being the moſt imperfect, is of plants, the ſecond of brute beaſts, and the third of men. The plants live by a vegitative, beaſts by a ſenſitive, and men by an intellective ſoule. And as the ſenſitive ſoule of brute beaſts is endued with all the vertues of the vegetative, ſo the humane intellective comprehendeth the vertues of all the inferior, not ſeparated by any diviſion, but by being indiviſibly united with reaſon and underſtanding, into one humane forme and ſoule whereon they depend. But becauſe we have ſayd a little before, that divers functions of the life are reſident, and appeare in divers parts of the body, here in this place, omitting all others, wee will proſecute thoſe only which are accounted the principall.

What the common ſenſe is.

The function of the common ſenſe is double.

The principall functions of a humane ſoule, according to the opinion of many, are foure in number, proceeding from ſo many faculties, and conſequently from one ſoule; they are theſe: The common Senſe, Imagination, Reaſoning, and Memory. And they thinke that the common or interior ſenſe doth receive the formes and images of ſenſible things, being carryed by the ſpirit through the paſſage of the nerves, as an inſtrument of the externall ſenſes, as it were a meſſenger to goe between them; and it ſerves not onely to receive them, but alſo to know, perceive and diſcerne them. For the eye, wherein the externall ſenſe of ſeeing conſiſteth, doth not know white or blacke. Therefore it cannot diſcerne the differences of colours, as neither the tongue taſtes, nor the noſe ſavours, nor the eares ſounds, nor laſtly, the hands their touching quality: yea, the eye doth not of it ſelfe perceive that it ſeeth, nor the noſe that it ſmelleth, nor the eares that they heare, nor the tongue that it taſteth, nor the hands that they touch. For all theſe things are the offices and functions of the common ſenſe; for this ſenſe knoweth that the eye hath ſeene ſome thing, either white, blacke, red, a man, horſe, ſheepe, or ſome ſuch like materiall thing, yea, even when the ſight is gone and paſt; and ſo likewiſe the noſe to have ſmelled this or that ſavour, the eare to have heard this or that ſound, the tongue to have taſted this or that taſt, and the hand to have touched this or that thing, bee they never ſo diverſe. For all the externall ſenſes, and all the functions thereof do end and are referred to the common ſenſe, as it were the lines of a circle from the circumference into the centre, as it is expreſſed in this figure.



For what cauſe the internall ſenſe is called the common ſenſe.

For which cauſe it is called the common or principll ſenſe, for that therein the primitive power of feeling or perceiving is ſituated, for it uſeth the miniſtery or ſervice of the externall ſenſes to know many and divers things, whoſe differences it doth diſcerne and judge, but ſimple things, that are of themſelves, and without any compoſition and connexion, which may conſtitute any thing true or falſe, or any argumentation, belongeth onely to the minde, underſtanding or reaſon. For this was the counſell of nature, that the externall ſenſes ſhould receive the formes of things ſuperficially, lightly and gently onely, like as a glaſſe, not to any other end but that they ſhould preſently ſend them unto the common ſenſe, as it were unto their center and prince, which he (that is to ſay the common ſenſe) at length delivereth to be collected unto the underſtanding or reaſoning faculty of the ſoule, which *Avicen* and *Averrois* have ſuppoſed to be ſituated in the former part of the braine.

The common ſenſe underſtandeth or knoweth thoſe things that are ſimple onely.

Next unto the common ſenſe followeth the phantaſie or imagination, ſo called, becauſe of it ariſe the formes and Ideas that are conceived in the minde, called of the Geekes *Phantaſmata*. This doth never reſt but in thoſe that ſleepe: neither alwaies in them, for oft-times in them it cauſeth dreames, and cauſeth them to ſuppoſe they ſee and perceive ſuch things as were never perceived by the ſenſes, nor which the nature of things, nor the order of the world will permit. The power of this faculty of the minde is ſo great in us, that often it bringeth the whole body in ſubjection unto it.

What Imagination is.

For it is recorded in hiſtory, that *Alexander* the Great ſitting at Table, and hearing *Timotheus* the Muſician ſing a martiall Sonnet unto his Citherne, that hee preſently leaped from the table, and called for armes; but when againe the Muſician mollifyed his tune, hee returned to the Table and ſate downe as before. The power of Imagination cauſed by muſicall harmony, was ſo great, that it ſubjected to it the courage of the Worlds conquerour, by whoſe various motion, it would now as it were cauſe him to runne headlong to armes, and then pacifie and quiet him, and ſo cauſe him to returne to his chaire and banquetting againe. And there was one whoſoever it was, who ſome few yeares agone, ſeeing the Turke dance on a rope on high, with both his feet faſtened in a baſon, turned his eyes from ſo dangerous a ſight or ſpectacle, although hee came to the place of purpoſe to ſee it, and was ſtricken with ſuch feare, that his body ſhooke and heart quaked, for feare leſt that by ſudden falling downe headlong hee ſhould breake his necke. Many looking downe from an high and lofty place, are ſo ſtricken with feare, that ſuddenly they fall downe headlong, being ſo overcome and bound with the imagination of the danger, that their owne ſtrength is not able to ſuſtaine them. Therefore it manifeſtly appeareth that God hath dealt moſt graciouſly and lovingly with us, who unto this power of imagination, hath joyned another, that is, the faculty or power of reaſon and underſtanding; which diſcerning falſe dangers and perils from true, doth ſuſtain and hold up a man that he may not be overthrowne by them.

After this appeareth and approacheth to performe his function, the faculty of Reaſon, being the Prince of all the principall faculties of the ſoule; which bringeth together, compoſeth, joyneth and reduceth all the ſimple and divided formes or images of things into one heape, that by dividing, collecting and reaſoning it might diſcerne and try truth from falſhood.

What Reaſon is.

This faculty of Underſtanding or Reaſon is ſubject to no faculty or inſtrument of the body, but is free, and penetrateth into every ſecret, intricate and hidden thing, with an incredible celerity: by which a man ſeeth what will follow, perceiveth the originalls and cauſes of things, is not ignorant of the proceedings of things, he compareth things that are paſt with thoſe that are preſent and to come, decreeing what to follow, and what to avoyde. This bridleth and with-holdeth the furious motions of the minde, bridleth the overhaſty motions of the tongue, and admoniſheth the ſpeaker that before the words paſſe out of his mouth, hee ought with diligence and diſcretion to ponder and conſider the thing whereof hee is about to ſpeake.

The functions of Reaſon.

After Reaſon and Judgement followeth Memory, which keeping and conſerving all formes and images that it receiveth of the ſenſes, and which Reaſon ſhall appoint, and as a faithfull keeper and conſerver, receiveth all things, and imprinteth and ſealeth them as well by their owne vertue and power, as by the impulſion and adherence of thoſe things in the body of the braine, without any impreſſion of the

What Memory is.

matter; that when occaſion ſerveth, we may bring them forth therehence as out of a treaſurie or ſtore-houſe. For otherwiſe, to what purpoſe were it to reade, heare and note ſo many things, unleſſe wee were able to keepe and retaine them in minde by the care and cuſtody of the Memory or Braine? Therefore aſſuredly God hath given us this one onely remedy and preſervative againſt the oblivion and ignorance of things, which although of it ſelfe and of its owne nature it bee of greater efficacie, yet by daily and often meditation it is trimmed and made more exquiſite and perfect. And hence it was that the Ancients termed wiſedome the daughter of memory and experience. Many have ſuppoſed that the manſion or ſeate of the Memory, is in the hinder part, or in the ventricle of the *Cerebellum*, by reaſon that it is apt to receive the formes of things, becauſe of the engrafted dryneſſe and hardneſſe thereof.

Wiſdome the daughter of memory and experience.

Chap. XII.

Of the naturall excrements in generall, and eſpecially of thoſe that the childe or infant being in the wombe excludeth.

What an excrement is.

Before I declare what excrements the infant excludeth in the wombe and by what paſſages, I thinke it good to ſpeak of the excrements which all men doe naturally voyde. All that is called an excrement which nature is accuſtomed to ſeparate and caſt out from the laudible and nouriſhing juice. There are many kinds of thoſe excrements.

The excrement of the firſt concoction.

The firſt is of the firſt concoction, which is performed in the ſtomacke, which being driven downe into the inteſtines or guts, is voyded by the fundament.

The excrement of the ſecond concoction is triple.

The ſecond commeth from the liver, and it uſually is three-fold, or of three kinds; one cholericke, whereof a great portion is ſent into the bladder of the gall, that by ſweating out there-hence, it might ſtirre up the expulſive faculty of the guts to expell and exclude the excrements. The other is like unto whay, which goeth with the bloud into the veines, and is as it were a vehicle thereto to bring it unto all the parts of the body, and into every Capillar veine for to nouriſh the whole body; and after it hath performed that function, it is partly expelled by ſweate, and partly ſent into the bladder, and ſo excluded with the urine. The third is the melancholicke excrement, which being drawn by the milt, the purer and thinner part thereof goeth into the nouriſhment of the milt, and after the remnant is partly purged out downewards by the hæmorrhoidall veines, and partly ſent to the orifice of the ſtomacke, to inſtimulate and provoke the appetite. The laſt commeth of the laſt concoction, which is abſolved in the habit of the body, and breatheth out, partly by inſenſible tranſpiration, is partly conſumed by ſweating, and partly floweth out by the evident and manifeſt paſſages that are proper to every part: as it happeneth in the braine before all other parts; for it doth unloade it ſelfe of this kinde of excrement by the paſſages of the noſe, mouth, eares, eyes, pallat bone and ſutures of the ſcull.

The excrement of the third concoction is triple.

Therefore if any of thoſe excrements bee ſtayed altogether, or any longer than it is meete they ſhould, the default is to bee amended by diet and medicine. Furthermore, there are other ſorts of excrements not naturall, of whom wee have entreated at large in our booke of the peſtilence.

The uſe of the navell ſtring.

When the infant is in the mothers wombe, untill hee is fully and abſolutely formed in all the liniments of his body, hee ſends forth his urine by the paſſage of the navell or *urachus*. But a little before the time of childe-birth, the *urachus* is cloſed, and then the man childe voydeth his urine by the conduit of the yard, and the woman childe by the necke of the wombe. This urine is gathered together and contained in the coate *Chorion* or *Allantoides*, together with the other excrements, that is to ſay, ſweat, & ſuch whayiſh ſuperfluities of the menſtruall matter, for the more eaſie bearing up of the floting or ſwimming childe. But in the time of child-birth, when the infant by kicking breaketh the membranes, thoſe humours runne out, which when the mydwifes perceive, they take it as a certaine ſigne that the childe is at hand.

The ſignes of ſpeedy and eaſie deliverance.

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For if the infant come forth together with thoſe waters, the birth is like to be more eaſie, and with the better ſucceſſe; for the necke of the wombe and all the genitalls are ſo by their moiſture relaxed and made ſlippery, that by the endeavour and ſtirring of the infant the birth will be the more eaſie, and with the better ſucceſſe: contrariwiſe, if the infant bee not excluded before all theſe humours bee wholly flowed out and gone, but remaineth as it were in a dry place, preſently through drineſſe the necke of the wombe and all the genitalls will be contracted and drawne together, ſo that the birth of the childe will bee very difficult and hard, unleſſe the necke of the wombe, to amend that default, be anointed with oile, or ſome other relaxing liquor. Moreover, when the childe is in the wombe, he voideth no excrements by the fundament, unleſſe it be when at the time of the birth, the proper membranes and receptacles are burſt by the ſtriving of the infant, for hee doth not take his meat at the mouth, wherefore the ſtomacke is idle then, and doth not execute the office of turning the meats into *Chylus*, nor of any other concoction; wherefore nothing can goe downe from it into the guts. Neither have I ſeldome ſeene infants borne without any hole in their fundament, ſo that I have beene conſtrained with a knife to cut in ſunder the membrane or tunicle that grew over and ſtopped it. And how can ſuch excrements be engendered, when the childe being in the wombe, is nouriſhed with the more laudable portion of the menſtruall blood? therefore the iſſue or child is wont to yeeld or avoyd two kindes or ſorts of excrements, ſo long as he is in the womb, that is to ſay, ſweat and urine, in both which he ſwimmes; but they are ſeparated by themſelves, by a certaine tunicle called *Allantoides*, as it may be ſeene in kids, dogges, ſheepe, and other brute beaſts; for as much as in mankinde the tunicle *Chorion* and *Allantoides* or *Farciminalis* be all one membrane. If the woman be great of a man childe, ſhe is more merry, ſtrong, and better coloured, all the time of her child bearing, but if of a woman childe, ſhe is ill coloured becauſe that women are not ſo hot as men.

Children born without a paſſage in their fundament.

Aph. 42. *ſect.* 5.

The males begin to ſtirre within three moneths and an halfe, but females after: if a woman conceive a male child, ſhe hath all her right parts ſtronger to every work: wherefore they do begin to ſet forwards their right foot firſt in going, & when they ariſe they leane on the right arme, the right dug will ſooner ſwell and waxe hard; the male children ſtirre more in the right ſide than in the left, and the female children rather in the left than in the right ſide.

Aph. 47. *ſect.* 5.

CHAP. XIII.

With what travell the Childe is brought into the world, and of the cauſe of this labour and travell.

When the naturall prefixed and preſcribed time of child-birth is come, the childe being then growne greater, requires a greater quantity of food: which when he cannot receive in ſufficient meaſure by his navell, with great labour and ſtriving hee endeavoureth to get forth: therefore then hee is moved with a ſtronger violence, and doth breake the membranes wherein he is contained. Then the wombe, becauſe it is not able to endure ſuch violent motions, nor to ſuſtaine or hold up the childe any longer, by reaſon that the conceptacles of the membranes are broken aſunder, is relaxed. And then the childe purſuing the aire which hee feeleth to enter in at the mouth of the wombe, which then is very wide and gaping, is carried with his head downewards, and ſo commeth into the world, with great pain both unto it ſelfe, and alſo unto his mother, by reaſon of the tenderneſs of his body, & alſo by reaſon of the extenſion of the nervous necke of his mothers wombe, and ſeparation of the bone called *Os Ilium* from the bone called *Os ſacrum*. For unleſſe thoſe bones were drawne in ſunder, how could not onely twinnes that cleave faſt together, but alſo one childe alone, come forth at ſo narrow a paſſage as the necke of the wombe is? Not onely reaſon, but alſo experience confirmeth it; for I have opened the bodies of women preſently after they have

Why the infant is borne ſometimes with his head forwards.

In the time of childe birth the bones of *Ilium* and *Os ſacrum* are drawne & extended one from another.

have died of travell in childe-birth, in whom I have found the bones of *Ilium* to bee drawne the breadth of ones finger from *Os ſacrum*: and moreover, in many unto whom I have been called being in great extremity of difficult and hard travell, I have not onely heard, but alſo felt the bones to crackle and make a noiſe, when I laid my hand upon the coccyx or rumpe, by the violence of the diſtention. Alſo honeſt matrons have declared unto me that they themſelves, a few daies before the birth, have felt and heard the noiſe of thoſe bones ſeparating themſelves one from another with great paine. Alſo a long time after the birth, many doe feele great paine and ache about the region of the coccix and *Os ſacrum*, ſo that when nature is not able to repaire the diſſolved continuity of the bones of *Ilium*, they are conſtrained to halt all the dayes of their life after. But the bones of the ſhare called *Oſſa pubis*, I have never ſeene to be ſeparated, as many do alſo affirme. It is reported that in *Italy* they break the coccyx or rumpe in all maidens, that when they come to bee married they may beare children with the leſſer travaile in childe-birth; but this is a forged tale, for that bone being broken, is naturally and of its owne accord repaired, and joyned together again with a *Callus*, whereby the birth of the childe will be more difficult and hard.

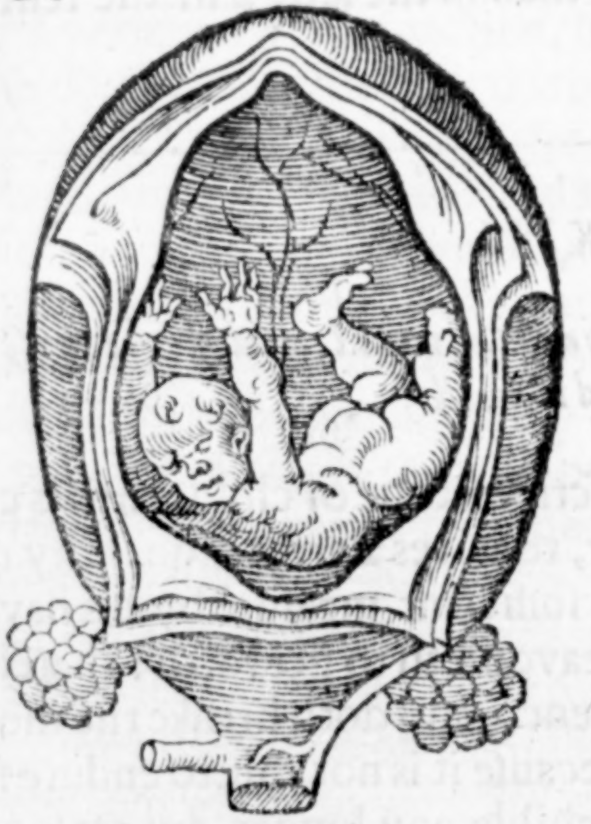
An Italian fable.

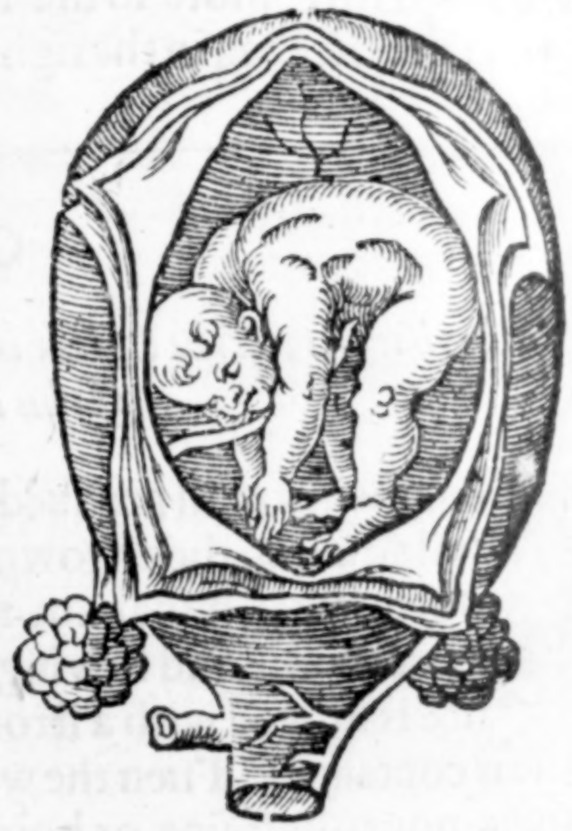
CHAP. XIV.

Of the ſituation of the infant in the wombe.

The ſituation of the infant in the wombe is divers.

REASON cannot ſhew the certain ſituation of the infant in the wombe, for I have found it altogether uncertaine, variable and divers both in living and dead women: in the dead by opening their bodies preſently after they were dead, and in the living by helping them by the induſtry of my hand, when they have beene in danger of periſhing by travell of child-birth: for by putting my hand into the womb, I have felt the infant comming forth, ſometimes with his feet forwards, ſometimes with his hands, and ſometimes with his hands and feet turned backwards, and ſometimes forwards, as the figure following plainely deſcribeth.

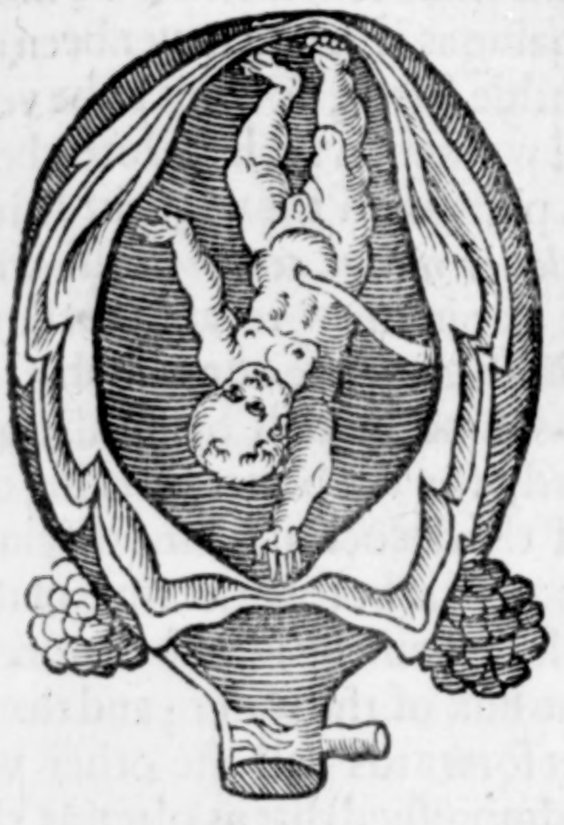


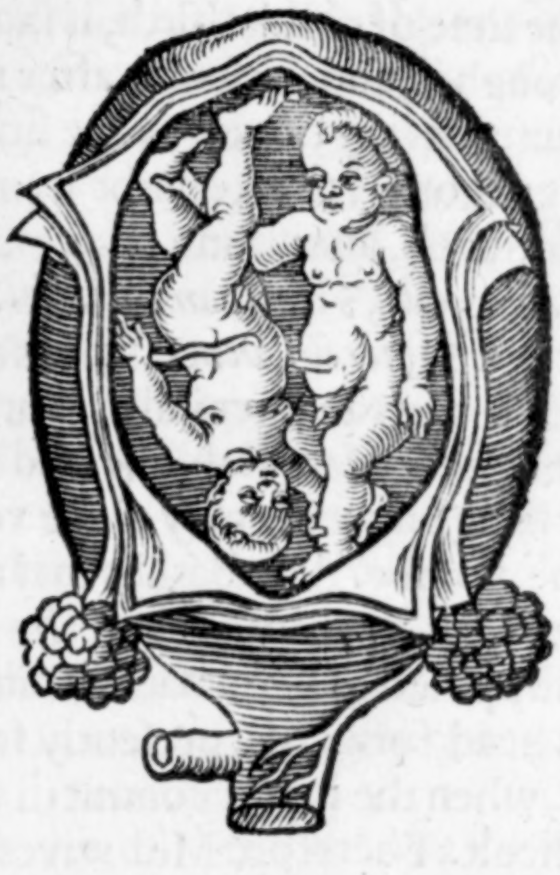


I have often found them comming forth with their knees forwards, and ſometimes with one of the feet, and ſometimes with their belly forwards, their hands and feet being lifted upwards, as the former figure ſheweth at large.

Sometimes I have found the infant comming with his feet downwards ſtriding awide, and ſometimes headlong, ſtretching one of his armes downward out at length, and that was an Hermaphrodite, as the figure following plainly declareth.

One time I obſerved in the birth of twinnes, that the one came with his head forwards, and the other with his feet, according as here I have thought good to deſcribe them.





In the bodies of women that died in travaile of childe I have ſometimes found children no bigger than if they had beene but foure moneths in the wombe, ſituated in a round compaſſe like a hoope, with their head bowed downe to the knees, with both their hands under the knees, and their heeles cloſe to their buttockes. And moreover, I proteſt before God that I found a childe being yet alive in the body of his mother (whom I opened ſo ſoone as ſhee was dead) lying all along ſtretched out, with his face upwards, and the palmes of his hands joyned together, as if he were at prayer.

CHAP. XV.

Which is the legitimate and naturall, and which the illegitimate or unnaturall time of childe birth.

Mankinde hath no certain time of bringing forth young.

TO all living creatures, except man, the time of conception and bringing forth their young is certaine and definite; but the iſſue of man commeth into the world, ſometimes in the ſeventh, ſometimes in the eighth, and ſometimes, which is moſt frequent, in the ninth moneth, ſometimes in the tenth moneth, yea ſometimes in the beginning of the eleventh moneth. *Maſſurius* reports that *Lucius Papyrius* the Pretor, the ſecond heire commencing a ſuit, gave the poſſeſſion of the goods away from him, ſeeing the mother of the childe affirmed that ſhe went thirteen moneths therewith, being there is no certaine definite time of child-birth. The child that is borne in the ſixt moneth cannot be long lived, becauſe that at that time all his body or members are not perfectly finiſhed or abſolutely formed. In the ſeventh moneth it is proved by reaſon and experience that the infant may be long lived. But in the eight moneth it is ſeldome or never long lived: the reaſon thereof is, as the Aſtronomers ſuppoſe, becauſe that at that time Saturne ruleth, whoſe coldneſſe and dryneſſe is contrary to the originall of life: but yet the phiſicall reaſon is more true; for the phyſitians ſay that the childe in the wombe doth often times in the ſeaventh moneth ſtrive to bee ſet at liberty from the incloſure of the wombe, and therefore it contendeth and laboureth greatlie, and ſo with labouring

Why the child is ſcarce alive in the eight moneth.

ring and ſtriving it becommeth weak, that all the time of the eight moneth it cannot recover his ſtrength again, whereby it may renew his accuſtomed uſe of ſtriving, and that ſome by ſuch labouring and ſtriving, hurt themſelves, and ſo dye. Yet ſome ſtrong and luſty women are thought to bring forth their children, being lively and ſtrong, on the eight moneth, as *Ariſtotle* teſtifieth of the *Aegyptians*, the Poets of the inhabitants of the Iſle of *Naxus*, and many of the Spaniards. Furthermore, I cannot ſufficiently marvaile, that the wombe, which all the time of childe-bearing is ſo cloſed together, that one can ſcarce put a probe into it, unleſſe it be happely by reaſon of ſuperfœtation, or when it is open for a ſhort time to purge it ſelfe, that preſently before the time of childe-birth, it ſhould gape and waxe ſo wide, that the infant may paſſe through it, and preſently after it to cloſe againe as if it had never been opened. But becauſe that the travell of the firſt time of childe-birth, is wont to be very difficult and grievous, I thinke it not unmeet that all women, a little before the time of their firſt travell, anoint and relaxe their privie parts with the unguent here deſcribed. ℞. *ſper. ceti*, ℥ ii. *ol. amygd. dul.* ℥ iv. *ceræ alb. & medul. cervin.* ℥ iii. *axung. anſ. & gallin. an.* ℥ i. *tereb. venet.* ℥ ii. make thereof an ointment to anoint the thighes, ſhare, privie parts and genitalls. Furthermore, it ſhall not bee unprofitable, to make a truſſe or girdle of moſt thinne and gentle dog-skinne, which being alſo anointed with the ſame unguent, may ſerve very neceſſarily for the better carrying of the infant in the wombe. Alſo bathes that are made of the decoction of mollifying herbs, are alſo very profitable to relaxe the privie parts a little before the time of the birth.

Lib. 4. de hiſt. anim. cap. 7.

The naturall & eaſie child birth

That is ſuppoſed to bee a naturall and eaſie birth, when the infant commeth forth with his head forwards, preſently following the flux of the water; and that is more difficult, when the infant commeth with his feet forwards: all the other wayes are moſt difficult. Therefore Mid-wives are to be admoniſhed that as often as they ſhall perceive the infant to be comming forth none of thoſe waies, but either with his belly or his backe forwards, as it were double, or elſe with his hands and feet together, or with his head forwards, and one of his hands ſtretched out, that they ſhould turne it, and draw it out by the feet; for the doing whereof, if they be not ſufficient, let them crave the aſſiſtance and helpe of ſome expert Chirurgian.

CHAP. XVI.

Signes of the birth at hand.

THere will bee great paine under the navell, and at the groines, and ſpreading therehence towards the *Vertebræ* of the loines, and then eſpecially when they are drawne backe from the *Os ſacrum*, the bones *Ilia* and the *Coccix* are thruſt outward, the genitalls ſwell with paine, and a certaine feaver-like ſhaking invades the body, the face waxeth red by reaſon of the endeavour of nature, armed unto the expulſion of the infant. And when theſe ſignes appeare let all things bee prepared ready to the childe-birth. Therefore firſt of all let the woman that is in travell be placed in her bed conveniently, neither with her face upwards, nor ſitting, but with her backe upwards and ſomewhat high, that ſhe may breath at more liberty, and have the more power or ſtrength to labour. Therefore ſhe ought to have her legs wide one from another, and crooked, or her heeles ſomewhat bowed up towards her buttocks, ſo that ſhe may lean on a ſtaffe that muſt be placed overthwart the bed. There are ſome that do travell in a ſtoole or chair made for the purpoſe: others ſtanding upright on their feet, and leaning on the poaſt or piller of the bed. But you muſt take diligent heed that you doe not exhort or perſwade the woman in travell to ſtrive or labour to expell the birth before the forenamed ſignes thereof doe manifeſtly ſhew that it is at hand. For by ſuch labour or pains ſhe might be wearied or ſo weakened, that when ſhee ſhould ſtrive or labour, ſhe ſhall have no power or ſtrength ſo to doe. If all theſe things doe fall out well in the childe-birth, the buſineſſe is to be committed to nature and to the Mid-wife. And the woman with child muſt onely bee admoniſhed that when ſhee feeleth very ſtrong paine, that ſhee preſently

How the woman that travelleth in childbirth muſt bee placed in her bed.

preſently therewith ſtrive with moſt ſtrong expreſſion, ſhutting her mouth and noſe if ſhee pleaſe, and at the ſame time let the mydwife with her hands force the infant from above downewards. But if the birth bee more difficult and painefull, by reaſon that the waters wherein the infant lay are flowed out long before, and the womb be dry, this ointment following is to be prepared. ℞. *butyri recentis ſine ſale in aqua artemeſiæ loti* ℥ii. *mucaginis ficuum, ſemin. lini & altheæ cum aqua ſabinæ extractæ, an.* ℥ß, *olei liliorum* ℥i. Make thereof an ointment, wherewith let the mydwife often anoynt the ſecret parts. Alſo this powder following may bee prepared. ℞. *Cinamom. cort. caſsiæ fiſtul. dictamni an.* ʒi ß *ſacch. albi ad pondus omnium*: make thereof a moſt ſubtle and fine powder. Let the woman that is in extremity by reaſon of difficult and painefull travell in child-birth, take halfe an ounce thereof at a time, with the decoction of linſeede, or in white wine, for it will cauſe more ſpeedy and eaſie deliverance of the childe.

An unction to ſupply the defect of the waters that are flowed out too long before the birth.

A powder to cauſe ſpeedy deliverance in child-birth.

Moreover, let the mydwife anoynt her hands with this ointment following as often as ſhee putteth them into the necke of the wombe, and therewith alſo anoint the parts about it. ℞. *olei ex ſeminibus lini* ℥i.ß. *olei de caſtoreo* ʒß. *galliæ moſchatæ* ʒiii. *ladani* ʒi. make thereof a liniment. Moreover, you may provoke ſneeſing, by putting a little pepper or white hellebore in powder into the noſtrils. Linſeed beaten, and given in a potion, with the water of Mugwort and Savine, is ſuppoſed to cauſe ſpeedy deliverance. Alſo the medicine following is commended for the ſame purpoſe. ℞. *corticis caſsiæ fiſtul. conquaſſatæ* ℥ii. *cicer. rub.* m. ß. *bulliant cum vino albo & aqua ſufficienti, ſub finem addendo ſabinæ,* ʒii. *in colatura pro doſi adde cinamomi* ʒß. *croci gr.* vi. make thereof a potion, which being taken, let ſneeſing bee provoked, as it is above-ſaid, and let her ſhut or cloſe her mouth and noſtrils.

Aph. 35. *&* 45. *ſect.* 5.

A potion cauſing ſpeedy deliverance.

Many times it happeneth that the infant commeth into the world out of the wombe, having his head covered or wrapped about with portion of the ſecundine or tunicle wherein it is encloſed, eſpecially when by the much, ſtrong, and happy ſtriving of the mother, he commeth forth together with the water wherein it lyeth in the wombe, and then the mydwives propheſie or foretell that the childe ſhall be happy, becauſe hee is borne as it were with a hood on his head. But I ſuppoſe that it doth betoken health of body both to the infant and alſo to his mother; for it is a token of eaſie deliverance. For when the birth is difficult and painfull, the child never bringeth that membrane out with him, but it remaineth behinde in the paſſage of the genitals or ſecret parts, becauſe they are narrow. For even ſo the Snake or Adder when ſhee would caſt her ſkinne thereby to renew her age, creepeth through ſome narrow or ſtraight paſſage. Preſently after the birth, the woman ſo delivered muſt take two or three ſpooneſuls of the oyle of ſweet almonds extracted without fire, and tempered with ſugar. Some will rather uſe the yolks of egges with ſugar, ſome the wine called Ipocras, others culliſes or gelly: but alwaies divers things are to bee uſed, according as the patient or the woman in childbed ſhall be grieved, and as the Phyſician ſhall give counſell, both to ceaſe and aſſwage the furious torments and paine of the throwes, to recover her ſtrength and nouriſh her.

What a woman in travell muſt take preſently after her deliverance.

Throwes come preſently after the birth of the child, becauſe that then the veines (nature being wholly converted to expulſion) caſt out the reliques of the menſtruall matter that hath beene ſuppreſſed for the ſpace of nine moneths, into the wombe with great violence, which becauſe they are groſſe, ſlimie and dreggiſh, cannot come forth without great paine both to the veines from whence they come, and alſo unto the wombe whereinto they goe: alſo then by the converſion of that portion thereof that remaineth into winde, and by the undiſcreete admiſſion of the aire in the time of the child-birth, the wombe and all the ſecret parts will ſwell, unleſſe it be prevented with ſome digeſting, repelling or mollifying oile, or by artificiall rowling of the parts about the belly.

The cauſe of the after-throwes.

Chap. XVII.

What is to bee done preſently after the child is borne.

Why the ſecundine or after-birth muſt bee taken away preſently after the birth of the childe.

The binding of the childs navel-ſtring after the birth.

PResently after the child is borne, the mydwife muſt draw away the ſecundine or after birth, as gently as ſhee can: but if ſhe cannot, let her put her hands into the wombe, and ſo draw it out, ſeparating it from the other parts; for otherwiſe if it ſhould continue longer, it would bee more difficult to bee gotten out, becauſe that preſently after the birth, the orifice of the wombe is drawn together and cloſed, and then all the ſecundine muſt be taken from the child. Therefore the navell ſtring muſt bee tyed with a double thread an inch from the belly. Let not the knot be too hard, leſt that part of the navell ſtring which is without the knot ſhould fall away ſooner than it ought, neither too ſlacke or looſe, leſt that an exceeding and mortall fluxe of bloud ſhould follow after it is cut off, and leſt that through it (that is to ſay, the navell ſtring) the cold aire ſhould enter into the childs body. When the knot is ſo made, the navell-ſtring muſt be cut in ſunder the breadth of two fingers beneath it with a ſharpe knife. Upon the ſection you muſt apply a double linnen cloth dipped in oyle of Roſes, or of ſweet almonds, to mitigate the paine; for ſo within a few dayes after, that which is beneath the knot will fall away, being deſtitute of life and nouriſhment, by reaſon that the veine and artery are tyed ſo cloſe, that no life nor nouriſhment can come unto it: commonly all mydwives doe let it lye unto the bare belly of the infant, whereof commeth grievous paine and griping, by reaſon of the coldneſſe thereof, which dyeth by little and little, as deſtitute of vitall heat. But it were farre better to roule it in ſoft cotton or lint, untill it be mortified, and ſo fall away.

Thoſe mydwives doe unadviſedly, who ſo ſoone as the infant is borne, doe preſently tye the navell ſtring and cut it off, not looking firſt for the voyding of the ſecundine. When all theſe things are done, the infant muſt bee wiped, cleanſed and rubbed from all filth and excrement with oyle of Roſes or Myrtles. For thereby the pores of the skinne will bee better ſhut, and the habite of the body the more ſtrengthened.

There bee ſome that waſh infants at that time in warme water and red wine, and afterwards annoynt them with the forenamed oyles. Others waſh them not with wine alone, but boyle therein red Roſes and the leaves of Myrtles, adding thereto a little ſalt; and then uſing this lotion for the ſpace of five or ſixe dayes, they not onely waſh away the filth, but alſo reſolve and digeſt, if there bee any hard or contuſed place in the infants tender body, by reaſon of the hard travell and labour in child-birth. Their toes and fingers muſt bee handled, drawne aſunder and bowed, and the joynts of the armes and legges muſt bee extended and bowed for many dayes and often; that thereby that portion of the excrementall humour that remaineth in the joynts, by motion may bee heated and reſolved. If there bee any default in the members, either in conformation, conſtruction or ſociety with thoſe that are adjoyning to them, it muſt bee corrected or amended with ſpeed. Moreover, you muſt looke whether any of the naturall paſſages bee ſtopped, or covered with a membrane, as it often happeneth. For if any ſuch cover or ſtop the orifices of the eares, noſtrils, mouth, yard or wombe, it muſt bee cut in ſunder by the Chyrurgion, and the paſſage muſt bee kept open by putting in of tents, peſſaries or doſels, leſt otherwiſe they ſhould joyne together againe after they are cut. If he have one finger more than hee ſhould naturally, if his fingers doe cleave cloſe together, like unto the feete of a Gooſe or Ducke, if the ligamentall membrane that is under the tongue bee more ſhort and ſtiffer than it ought, that the infant cannot ſucke, nor in time to come, ſpeake, by reaſon thereof; and if there be any other thing contrary to nature, it muſt bee all amended by the induſtry of ſome expert Chyrurgion.

The defaults that are cōmonly in children newly borne.

The defaults of conformation muſt be ſpeedily amended.

Many times in children newly borne, there ſticketh on the inner ſide of their mouth and on their tongue, a certain chalkie ſubſtance, both in colour & conſiſtence;

this affect proceeding from the diſtemperature of the mouth, the French-men call it the white Cancer. It will not permit the infant to ſuck, & will ſhortly breed & degenerate into ulcers that will creepe into the jawes, and even unto the throate, and unleſſe it bee cleanſed ſpeedily, will bee their death. For remedy whereof, it muſt bee cleanſed by deterſives, as with a linnen cloth bound to a little ſticke, and dipped in a medicine of an indifferent conſiſtence made with oyle of ſweete almonds, hony and ſugar. For by rubbing this gently on it, the filth may bee mollified, and ſo cleanſed or waſhed away.

Remedies for the cancer in a childs mouth.

Moreover it will bee very meete and convenient to give the infant one ſpoonefull of oyle of almonds, to make his belly looſe and ſlippery, to aſſwage the roughneſſe of the weaſon and gullet, and to diſſolve the tough phlegme, which cauſeth a cough, and ſometimes difficulty of breathing. If the eye lids cleave together, or if they bee joyned together, or agglutinated to the coats *cornea* or *adnata*; if the watery tumour called *hydrocephalos* affect the head, then muſt they bee cured by the proper remedies formerly preſcribed, againſt each diſeaſe.

Many from their birth have ſpots or markes, which the common people of France call *Signes*, that is, markes or ſignes. Some of theſe are plaine and equall with the skinne, others are raiſed up into little tumours, and like unto warts, ſome have haires upon them, many times they are ſmoothe, blacke or pale, yet for the moſt part red. When they ariſe in the face, they ſpread abroad thereon many times with great deformity. Many thinke the cauſe thereof to bee a certaine portion of the menſtruall matter cleaving to the ſides of the wombe, comming of a freſh flux, if happely the man doe yet uſe copulation with the woman, or elſe diſtilling out of the veines into the wombe, mixed and concorporated with the ſeedes at that time when they are congealed, infecting this or that part of the iſſue, being drawne out of the ſeminall body, with their owne colour. Women referre the cauſe thereof unto their longing when they are with childe; which may imprint the image of the thing they long for or deſire, in the child or iſſue that is not as yet formed (as the force or power of imagination in humane bodies is very great:) but when the child is formed, no imagination is able to leave the impreſſion of any thing in it, no more than it could cauſe hornes to grow on the head of King *Chypus* as hee ſlept preſently after hee was returned from attentively beholding Bulls fighting together. Some of thoſe ſpots bee curable, others not; as thoſe that are great, and thoſe that are on the lips, noſtrils, and eye-lids. But thoſe that are like unto warts, becauſe they are partakers of a certaine maligne quality and melancholicke matter, which may bee irritated by endeavouring to cure them, are not to bee medled with at all, for being troubled and angered, they ſoone turne into a Cancer (which they call *Noli me tangere*). Thoſe that are curable are ſmall, and in ſuch parts as they may bee dealt withall without danger. Therefore they muſt bee pierced through by the roots with a needle and a thread, and ſo being lifted up by the ends of the thread, they muſt bee cut away, and the wound that remaineth muſt be cured according to the generall method of wounds.

An old fable of King *Chypus*.

Which uncurable.

Which and how they are curable.

There are ſome that ſuppoſe the red ſpots that are raiſed up into little knobbes and bunches, may bee waſhed away and conſumed by rubbing and annoynting them often with menſtruall bloud, or the bloud of the ſecundine or after-birth. Thoſe that are hairie and ſomewhat raiſed up like unto a Want or Mouſe, muſt bee pierced through the roots in three or foure places, and ſtraightly bound, ſo that at length being deſtitute of life and nutriment, they may fall away: after they are fallen away, the ulcer that remaineth muſt bee cured as other ulcers are. If there bee any ſuperfluous fleſh remaining, it muſt bee taken away by applying *Ægyptiacum*, or the powder of mercury, and ſuch like: but if it be doubted that it commeth from the root of the tumour that may happely remaine, it muſt bee burned away by the root with oyle of vitrioll or *aqua fortis*.

There is alſo an other kinde or ſort of ſpots, of a livide or violet colour, comming eſpecially in the face about the lips, with a ſoft, ſlacke, laxe, thinne, and unpainefull tumour, and the veines as if they were varicous round about it. This kinde of tumour groweth greater when it ariſeth on children that are wayward and crying, and in men of riper yeares that are cholericke and angry, and then it will bee of a diverſe colour, like unto a lappet or flap of fleſh that hangeth over the Turkie-cocks bill. When they have done crying, or ceaſed their anger, the tumour will returne to his owne naturall colour againe. But you muſt not attempt to cure it in people that are of theſe conditions.

Chap. XVIII.

How to pull away the ſecundine or after-birth.

Why it is called the ſecundine.

I Suppoſe that they are called ſecundines, becauſe they doe grieve the woman that is with child the ſecond time, as it were a ſecond birth: for if there bee ſeverall children in the wombe at once, and of different ſexes, they then have every one their ſeverall ſecundines, which thing is very neceſſary to bee knowne by all mydwives. For they doe many times remaine behinde in the wombe when the child is borne, either by reaſon of the weakeneſſe of the woman in travell, which by contending and labouring for the birth of her childe, hath ſpent all her ſtrength: or elſe by a tumour riſing ſuddenly in the necke of the wombe, by reaſon of the long and difficult birth, and the cold aire unadviſedly permitted to ſtrike into the orifice of the wombe. For ſo the liberties of the wayes or paſſages are ſtopped and made more narrow, ſo that nothing can come forth: or elſe becauſe they are doubled and foulded in the wombe, and the waters gone out from them with the infant, ſo that they remaine as it were in a dry place: or elſe becauſe they yet ſticke in the wombe by the knots of the veines and arteries, which commonly happeneth in thoſe that are delivered before their time. For even as apples which are not ripe, cannot bee pulled from the tree but by violence; but when they are ripe, they will fall off of their owne accord: ſo the ſecundine before the naturall time of the birth can hardly bee pulled away but by violence; but at the prefixed naturall time of the birth, it may eaſily be drawne away.

The cauſes of the ſtaying of the ſecundines.

Accidents that follow the ſtaying of the ſecundines.

Many and grievous accidents follow the ſtaying of the ſecundine; as ſuffocation of the wombe, often ſwouning, by reaſon that groſſe vapours ariſe from the putrefaction unto the mydriffe, heart and braine: therefore they muſt bee pulled away with ſpeede from the wombe, gently handling the navell, if it may bee ſo poſſibly done. But if it cannot bee done ſo, the woman muſt bee placed as ſhee was wont when that the childe will not come forth naturally, but muſt bee drawne forth by art. Therefore the mydwife having her hand annoynted with oyle, muſt put it gently into the womb, and finding out the navell ſtring, muſt follow it untill it come unto the ſecundine, and if it doe as yet cleave to the wombe by the cotylidons, ſhee muſt ſhake and move it gently up and downe, that ſo when it is ſhaked and looſed, ſhee may draw it out gently; but if it ſhould bee drawne with violence, it were to be feared leſt that the wombe ſhould alſo follow: for by violent attraction ſome of the veſſels, and alſo ſome of the nervous ligaments, whereby the wombe is faſtened on each ſide, may bee rent, whereof followeth corruption of bloud ſhedde out of the veſſels, and thence commeth inflammation, an abſceſſe or a mortall gangrene. Neither is there leſſe danger of a convulſion by reaſon of the breaking of the nervous bodies, neither is there any leſſe danger of the falling downe of the wombe. If that there bee any knots or clods of bloud remaining together with the ſecundine, the mydwife muſt draw them out one by one, ſo that not any may bee left behinde.

The manner of drawing out the ſecundines that remaine after the birth.

The cauſe of the falling down of the wombe.

The accidents that come of the violent pulling of the wombe, together with the ſecundine.

Some women have voyded their ſecundine, when it could not bee drawne forth by any meanes, long after the birth of the child, by the necke of their wombe, piecemeale, rotten and corrupted, with many grievous and painefull accidents. Alſo it ſhall bee very requiſite to provoke the endeavour of the expulſive faculty by ſternutatories, aromaticke fomentations of the necke of the wombe, by mollifying injections: and contrariwiſe, by applying ſuch things to the noſtrils as yeeld a ranke ſavour or ſmell, with a potion made of mugwurt and bay berries taken in hony and wine mixed together, or with halfe a dramme of the powder of ſavine, or with the haire of a womans head, burnt and beaten to powder, and given to drink; and to conclude, with all things that provoke the tearmes or courſes.

CHAP. XIX.

What things muſt bee given to the infant by the mouth, before hee bee permitted to ſuck the Teat or Dugge.

IT will bee very profitable to rub all the inner ſide of the childes mouth and pallat gently with treacle and hony, or the oyle of ſweete almonds extracted without fire, and if you can, to cauſe it to ſwallow ſome of thoſe things: for thereby much flegmatick moyſture will bee drawne from the mouth, and alſo will bee moved or provoked to bee vomited up from the ſtomacke; for if theſe excrementall humours ſhould bee mixed with the milke that is ſucked, they would corrupt it, and then the vapours that ariſe from the corrupted milke unto the brain would inferre moſt pernicious accidents. And you may know that there are many excrementall things in the ſtomacke and guts of children by this, becauſe that ſo ſoon as they come into the world, and often before they ſuck milke or take any other thing, they voyde downewards many excrements diverſly coloured, as yellow, greene, and blacke. Therefore many, that they may ſpeedily evacuate the matter that cauſeth the fretting of the guts, doe not onely miniſter thoſe things fore-named, but alſo ſome laxative ſyrupe, as that that is made of damaske Roſes. But before the infant bee put to ſuck the mother, it is fitting to preſſe ſome milke out of her breaſt into its mouth, that ſo the fibres of the ſtomack may by little and little accuſtome themſelves to draw in the milke.

To draw fleame from the childs mouth.

Milke ſoon corrupted in a flegmatick ſtomack.

CHAP. XX.

That mothers ought to nurſe or give ſucke unto their owne children.

THat all mothers would nurſe their owne children were greatly to bee wiſhed: for the mothers milke is farre more familiar nouriſhment for the infant than that of any other nurſe: for it is nothing elſe but the ſame bloud made white in the dugges, wherewith before it was nouriſhed in the wombe. For the mother ought not to give the child ſuck for the ſpace of a few dayes after the birth, but firſt to expect the perfect expurgation and avoyding of the excrementall humours. And in the meane time let her cauſe her breaſts to bee ſucked of another, or many other children, or of ſome wholſome or ſober maide, whereby the milke may bee drawne by little and little unto her breaſts, and alſo by little and little purified.

The mothers milke is moſt familiar for the child.

For a certaine ſpace after the birth, the milke will bee troubled, and the humours of the body moved: ſo that by long ſtaying in the dugges, it will ſeeme to degenerate from its naturall goodneſſe, as the groſſeneſſe of it is ſomewhat congealed, the manifeſt heate in touching, and the yellow colour thereof teſtifieth evidently. Therefore it is neceſſary that others ſhould come in place thereof when it is ſucked out, wherewith the infant may be nouriſhed. But if the mother or the nurſe chance to take any diſeaſe, as a Feaver, Scouring, or any ſuch like, let her give the child to another, to give it ſucke, leſt that the child chance to take the nurſes diſeaſes. And moreover, mothers ought to nurſe their owne children, becauſe for the moſt part they are farre more vigilant and carefull in bringing up and attending their children, than hired and mercenary nurſes, which doe not ſo much regard the infant,

The diſeaſe of the nurſe is participated unto the child.

Gel.lib.12. ca.1.

as the gaine they ſhall have by the keeping of it, for the moſt part. Thoſe that doe not nurſe their owne children, cannot rightly bee termed mothers: for they doe not abſolutely performe the duty of a mother unto their childe, as *Marcus Aurelius* the Roman Emperour was wont to ſay. For this is a certaine unnaturall, imperfect and halfe kinde of a mothers duty, to beare a childe, and preſently to abandon or put it away as if it were forſaken: to nouriſh and feede a thing in their wombe (which they neither know nor ſee) with their owne bloud, and then not to nouriſh it when they ſee it in the world alive, a creature or reaſonable ſoule, now requiring the help and ſuſtentation of the mother.

Chap. XXI.

Of the choice of Nurſes.

The beſt age of a nurſe.

MAny husbands take ſuch pitty on their tender wives, that they provide nurſes for their children, that unto the paines that they have ſuſtained in bearing them, they may not alſo adde the trouble of nurſing them: wherefore ſuch a nurſe muſt bee choſen which hath had two or three children. For the dugges which have beene already ſucked and accuſtomed to bee filled, have the veines and arteries more large and capable to receive the more milke. In the choyce of a nurſe there are ten things to bee conſidered very diligently: as, her age, the habit of her body, her behaviour, the condition of her milke, the forme, not onely of her dugges or breaſts, but alſo of her teats or nipples, the time from her child-birth, the ſexe of her laſt infant or childe, that ſhee bee not with childe, that ſhee bee ſound and in perfect health. As concerning her age, ſhee ought not to bee under twenty five yeares, nor above thirty five: the time that is betweene is the time of ſtrength, more temperate, and more wholeſome and healthy, and leſſe abounding with excrementall humours. And becauſe her body doth not then grow or encreaſe, ſhee muſt of neceſſity have the more abundance of bloud. After thirty five yeares in many the menſtruall fluxes do ceaſe, and therefore it is to bee ſuppoſed that they have the leſſe nutriment for children.

The beſt habit of body in a nurſe.

Lib. de inf. nutr.

The nurſe muſt alſo be of a good habit, or ſquare or wel ſet body, her breaſt broad, her colour lively, not fat, nor leane, but well made, her fleſh not ſoft and tender, but thick, and hard or ſtrong, whereby ſhe may be the more able to endure watching & taking of pains about the child; ſhe muſt not have a red or freckled face, but browne or ſomewhat ſhadowed or mixed with redneſſe: for truly ſuch women are more hot than thoſe that are red in the face, by reaſon whereof they muſt needs concoct and turne their meate the better into bloud. For according to the judgement of *Sextus Cheronenſis*, as blackiſh or browne ground is more fertill than the white; even ſo a browne woman hath more ſtore of milke. You muſt looke well on her head, leſt ſhee ſhould have the ſcurfe or running ſores; ſee that her teeth bee not foule or rotten, nor her breath ſtinking, nor no ulcer nor ſore about her body, and that ſhe be not borne of gouty or leprous Parents.

Of what behaviour the nurſe muſt bee.

Shee ought to bee quicke and diligent in keeping the childe neate and cleane, chaſte, ſober, merry, alwaies laughing and ſmiling on her infant, often ſinging unto it, and ſpeaking diſtinctly and plainely, for ſhee is the onely miſtriſſe to teach the childe to ſpeake. Let her bee well mannered, becauſe the manners of the nurſe are participated unto the infant together with the milke. For the welpes of dogges, if they doe ſucke Wolves or Lioneſſes, will become more fierce and cruell than otherwiſe they would. Contrariwiſe, the Lions whelps will leave their ſavageneſſe and fierceneſſe, if that they bee brought up and nouriſhed with the milke of any Bitch, or other tame beaſt. If a Goat give a Lambe ſucke, the ſame Lambes wooll will be more hard than others: contrariwiſe, if a Sheep give a Kyd ſuck, the ſame Kyds haire will be more ſoft than another Kyds haire. She ought to be ſober, and the rather for this cauſe, becauſe many nurſes being overloaden with wine & banqueting, often ſet their children unto their breaſts to ſuck, and then fall aſleep, and ſo ſuddenly ſtrangle or choak them.

Shee

Why the nurſe muſt abſtaine from copulation.

Shee muſt abſtaine from copulation : for copulation troubleth and moveth the humours and the bloud, and therefore the milke it ſelfe ; and it diminiſheth the quantity of milke, becauſe it provoketh the menſtruall fluxe, and cauſeth the milke to have a certain ſtrong and virous quality, ſuch as we may perceive to breathe from them that are incenſed with the fervent luſt and deſire of venery. And moreover, becauſe that thereby they may happen to bee with childe, whereof enſueth diſcommodity both to her owne childe that is within her body, and alſo to the nurſe child: to the nurſe childe, becauſe that the milke that it ſucketh will be worſe and more depraved than otherwiſe it would bee, by reaſon that the more laudable bloud after the conception remaineth about the wombe , for the nutriment and increaſing of the infant in the wombe ; and the more impure bloud goeth into the dugges, which breedeth impure or uncleane milke: but to the conceived childe, becauſe it will cauſe it to have ſcarcity of foode ; for, ſo much as the ſucking childe ſucketh, ſo much the child conceived in the wombe, wanteth.

What dugs a nurſe ought to have.

Alſo ſhee ought to have a broad breaſt, and her dugges indifferently bigge, not ſlacke or hanging , but of a middle conſiſtence, betweene ſoft and hard ; for ſuch dugges will concoct the bloud into milke the better, becauſe that in firme fleſh the heate is more ſtrong and compact. You may by touching try whether the fleſh bee ſolid and firme, as alſo by the diſperſing of the veines, eaſily to bee ſeene by reaſon of their ſwelling and blewneſſe, through the dugges, as it were into many ſtreams or little rivelets ; for in fleſh that is looſe and ſlacke, they lie hidden. Thoſe dugges that are of a competent bigneſſe, receive or containe no more milke than is ſufficient to nouriſh the infant. In thoſe dugges that are great and hard, the milke is as it were ſuffocated, ſtopped or bound in, ſo that the childe in ſucking can ſcarce draw it out : and moreover, if the dugges bee hard, the childe putting his mouth to the breaſt, may ſtrike his noſe againſt it, and ſo hurt it, whereby hee may either refuſe to ſucke, or if hee doth proceede to ſucke, by continuall ſucking, and placing of his noſe on the hard breaſt, it may become flat, and the noſtrils turned upwards, to his great deformity, when hee ſhall come to age. If the teates or nipples of the dugges doe ſtand ſomewhat low or depreſſed inwards on the toppes of the dugges, the childe can hardly take them betweene its lippes, therefore his ſucking will bee very laborious. If the nipples or teats bee very bigge, they will ſo fill all his mouth, that he cannot well uſe his tongue in ſucking or in ſwallowing the milke.

What is to bee obſerved in the milke.

Wee may judge of or know the nature and condition of the milke, by the quantity, quality, colour, ſavour and taſte : when the quantity of the milke is ſo little, that it will not ſuffice to nouriſh the infant, it cannot bee good and laudable ; for it argueth ſome diſtemperature either of the whole body, or at leaſt of the dugges , eſpecially a hot and dry diſtemperature. But when it ſuper-aboundeth, and is more than the infant can ſpend, it exhauſteth the juice of the nurſes body ; and when it cannot all bee drawne out by the infant, it cluttereth, and congealeth or corrupteth in the dugges. Yet I would rather wiſh it to abound, than to bee defective, for the ſuper-abounding quantity may bee preſſed out before the child be ſet to the breaſt.

The laudable conſiſtence of milke.

That milke that is of a meane conſiſtence betweene thicke and thinne, is eſteemed to bee the beſt. For it betokeneth the ſtrength and vigour of the faculty that ingendereth it in the breaſts. Therefore if one droppe of the milke bee layd on the naile of ones thumbe, being firſt made very cleane and faire, if the thumbe bee not moved, and it runne off the naile, it ſignifieth that it is watery milke : but if it ſticke to the naile, although the end of the thumbe bee bowed downewards, it ſheweth that it is too groſſe and thicke : but if it remaine on the naile ſo long as you hold it upright, and fall from it when you hold it a little aſide or downewards by little and little, it ſheweth it is very good milke. And that which is exquiſitely white, is beſt of all. For the milke is no other thing than bloud made white.

Why the milke ought to be very white.

Therefore, if it bee of any other colour, it argueth a default in the bloud : ſo that if it bee browne, it betokeneth melancholy bloud ; if it be yellow, it ſignifieth cholericke bloud ; if it bee wanne and pale, it betokeneth phlegmaticke bloud ; if it bee ſomewhat red, it argueth the weakeneſſe of the faculty that engendreth the milke.

It

Why a woman that hath red hair, or freckles on her face cannot be a good nurſe.

It ought to be ſweet, fragrant, and pleaſant in ſmell; for if it ſtrike into the noſtrills with a certaine ſharpeneſſe, as for the moſt part the milke of women that have red haire and little freckles on their faces doth, it prognoſticates a hot and cholerick nature: if with a certaine ſowerneſſe, it portendeth a cold and melancholy nature. In taſte it ought to be ſweet, and as it were ſugred, for the bitter, ſaltiſh, ſharp, and ſtipticke, is naught. And here I cannot but admire the providence of nature, which hath cauſed the blood wherewith the childe ſhould be nouriſhed to be turned into milke: which unleſſe it were ſo, who is he that would not turne his face from, and abhorre ſo grievous and terrible a ſpectacle of the childes mouth ſo imbrued and beſmeared with blood? What mother or nurſe would not be aſtoniſhed or amazed at every moment with the feare of the blood ſo often ſhedde out, or ſucked by the infant for his nouriſhment? Moreover, we ſhould want two helps of ſuſtentation, that is to ſay, butter and cheeſe.

Neither ought the childe to bee permitted to ſucke within five or ſixe dayes after it is borne, both for the reaſon before alledged, and alſo becauſe he hath need of ſo much time to reſt quiet, and eaſe himſelfe after the paines hee hath ſuſtained in his birth: in the meane ſeaſon the mother muſt have her breaſts drawne by ſome maide that drinketh no wine, or elſe ſhe may ſucke or draw them her ſelfe with an artificiall inſtrument which I will deſcribe hereafter.

Why that nurſe that hath borne a man childe is to be preferred before another.

That nurſe that hath borne a man childe is to be preferred before another, becauſe her milke is the better concocted, the heate of the male childe doubling the mothers heate. And moreover, the women that are great with childe of a male childe, are better coloured, and in better ſtrength, and better able to doe any thing all the time of their greatneſſe, which proveth the ſame: and moreover the blood is more laudable, and the milke better. Furthermore, it behoveth the Nurſe to bee brought on bed, or to travell at her juſt and prefixed or naturall time: for when the childe is born before his time of ſome inward cauſe, it argueth that there is ſome default lurking and hidden in the body and humours thereof.

Why ſhe cannot be a good nurſe whoſe childe was born before the time.

Chap. XXII.

What diet the Nurſe ought to uſe, and in what ſituation ſhee ought to place the infant in the cradle.

Both in eating, drinking, ſleeping, watching, exerciſing and reſting, the nurſes diet muſt be divers, according as the nature of the childe both in habit and temperature ſhall be: as for example, if the childe bee altogether of a more hot blood, the nurſe both in feeding and ordering her ſelfe ought to follow a cooling diet. In generall, let her eat meates of good juice, moderate in quantity and quality, let her live in a pure and cleere aire, let her abſtaine from all ſpices, and all ſalted and ſpiced meats, and all ſharpe things, wine, eſpecially that which is not allayed or mixed with water, and carnall copulation with a man, let her avoyd all perturbations of the minde, but anger eſpecially, let her uſe moderate exerciſe, unleſſe it be the exerciſe of her armes and upper parts, rather than the legges and lower parts, whereby the greater attraction of the blood, that muſt be turned into milke, may bee made towards the dugges. Let her place her childe ſo in the cradle that his head may be higher than all the body, that ſo the excrementall humours may bee the better ſent from the braine unto the paſſages that are beneath it. Let her ſwathe it ſo as the neck and all the back-bone may be ſtraight and equall. As long as the childe ſucketh, and is not fed with ſtronger meat, it is better to lay him alway on his backe, than any other way, for the backe is, as it were the Keele in a ſhip, the ground-worke and foundation of all the whole body, whereon the infant may ſafely and eaſily reſt. But if hee lye on the ſide, it were danger leſt that the bones of the ribs being ſoft and tender, not ſtrong enough, and united with ſlacke bands, ſhould bow under the waight of the reſt, and ſo waxe crooked, whereby the infant might become crooke-backed. But when he beginneth to breed teeth

Anger greatly hurteth the nurſe.

The exerciſe of the arms is beſt for the nurſe.

How the child ſhould be placed in the cradle.

eeth, and to bee fed with more ſtrong meat, and alſo the bones and connexions of them begin to waxe more firme and hard, hee muſt bee layed one while on this ſide, another while on that, and now and then alſo on his backe. And the more hee groweth, the more let him be accuſtomed to lye on his ſides; and as hee lieth in the cradle, let him bee turned unto that place whereat the light commeth in, leſt that otherwiſe he might become poore-blind, for the eye of its owne nature is bright and light-ſome, and therefore alwaies deſireth the light, and abhorreth darkeneſſe, for all things are moſt delighted with their like, and ſhunne their contraries. Therefore unleſſe the light come directly into the childes face, he turneth himſelfe every way being very ſorrowfull, and ſtriveth to turne his head and eyes that hee may have the light; and that often turning and rowling of his eyes at length groweth into a cuſtome that cannot bee left: and ſo it commeth to paſſe that the infant doth either become poore-blind, if hee ſet his eyes ſtedfaſtly on one thing, or elſe his eyes doe become trembling, alwaies turning and unſtable, if hee caſt his eyes on many things that are round about him: which is the reaſon that nurſes, being taught by experience, cauſe over the head of the childe lying in the cradle, an arch or vault of wickers covered with cloath to be made, thereby to reſtraine, direct, and eſtabliſh the uncertaine and wandering motions of the childes eyes.

Why an arch of wickers muſt be made over the childes head lying in the cradle.

If the nurſe be ſquint-eyed, ſhe cannot look upon the childe but ſide-waies, whereof it commeth to paſſe that the childe being moiſt, tender, flexible and prone to any thing with his body, and ſo likewiſe with his eye, by a long and daily cuſtome unto his nurſes ſight, doth ſoone take the like cuſtome to looke after that ſort alſo, which afterwards he cannot leave or alter. For thoſe evill things that we learn in our youth, do ſtick firmly by us, but the good qualities are eaſily changed into worſe. In the eies of thoſe that are ſquint-eyed, thoſe two muſcles which do draw the eyes to the greater or leſſer corner, are chiefly or more frequently moved. Therefore either of theſe being confirmed in their turning aſide by long uſe, as the exerciſe of their proper office encreaſeth the ſtrength, ſoone overcomes the contrary or withſtanding muſcles, called the Antagoniſts, and brings them into their ſubjection, ſo that will they nill they, they bring the eye unto this or that corner as they liſt. So children become left-handed, when they permit their right hand to languiſh with idleneſſe and ſluggiſhneſſe, and ſtrengthen their left hand with continuall uſe and motion to do every action therewithall, and ſo bring by the exerciſe thereof, more nutriment unto that part. But if men (as ſome affirme) being of ripe yeers and in their full growth, by daily ſociety and company of thoſe that are lame and halt doe alſo halt, not minding ſo to doe, but it commeth againſt their wills, and when they thinke nothing thereof, why ſhould not the like happen in children, whoſe ſoft and tender ſubſtance is as flexible and pliant as waxe unto every impreſſion? Moreover, children, as they become lame and crook-backt, ſo doe they alſo become ſquint-eyed by the hereditary default of their parents.

Why a ſquint-eyed nurſe cauſeth the childe to be ſquint-eyed.

How children become left-handed.

CHAP. XXIII.

How to make pappe for children.

PAppe is a moſt meet foode or meat for children, becauſe they require moiſt nouriſhment, and it muſt bee anſwerable in thickeneſſe to the milke, that ſo it may not be difficult to be concocted or digeſted. For pap hath theſe three conditions, ſo that it be made with wheaten flower, and that not crude but boiled: let it be put into a new earthen pot or pipkin, and ſo ſet into an oven at the time when bread is ſet thereinto to bee baked, and let it remaine there untill the bread bee baked and drawne out; for when it is ſo baked it is leſſe clammy and crude. Thoſe that mixe the meale crude with the milke, are conſtrained to abide one of theſe diſcommodities or other, either to give the meale groſſe & clammy unto the child, if that the pap be onely firſt boiled over the fire in a pipkin or skillet ſo long as ſhall bee neceſſary

Three laudable conditions of pappe.

How the meale muſt be prepared to make the pap withall.

Why the meale wherewith the pap muſt be made, muſt firſt be boiled or baked.

for the milke; hence come obſtructions in the meſaraike veines, and in the ſmall veines of the liver, fretting and wormes in the guts, and the ſtone in the reines. Or elſe they give the child the milk, deſpoiled of its butteriſh and whayiſh portion, and the terreſtriall and cheeſelike or curdlike remaining, if the pap be boiled ſo long as is neceſſary for the meale: for the milke requireth not ſo great, neither can it ſuffer ſo long boyling as the meale. Thoſe that doe uſe crude meale, and have no hurt by it, are greatly bound to nature for ſo great a benefit. But *Galen* willeth children to bee nouriſhed onely with the nurſes milke, ſo long as the nurſe hath enough to nouriſh and feed it. And truely there are many children that are contented with milke only, and will receive no pappe untill they are three moneths old. If the child at any time bee coſtive, and cannot voide the excrements, let him have a cataplaſme made with one dramme of Aloes, of white and blacke Hellebore, of each fifteene graines, being all incorporated in as much of an oxe gall as is ſufficient, and extended or ſpread on cotton like unto a pultis, as broad as the palme of ones hand, and ſo apply it upon the navell warme: moreover, this cataplaſme hath alſo vertue to kill the wormes in the belly. Many times children have fretting of the guts, that maketh them to cry, which commeth of crudity. This muſt bee cured by applying unto the belly ſweaty or moiſt woole, macerated in oile of chamomile.

1. *de ſanit. tuend.*

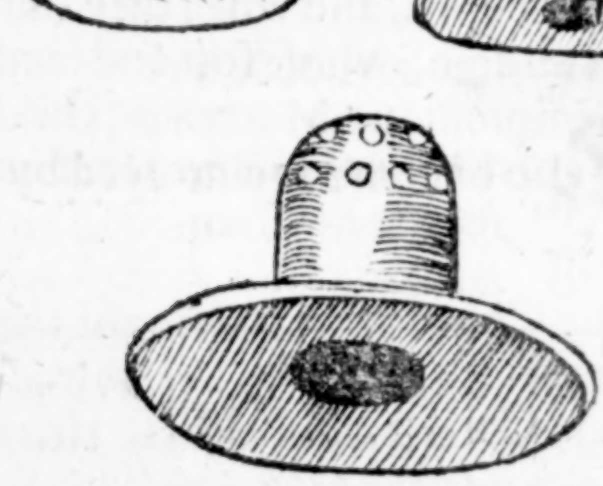
A cataplaſme to relaxe the childs belly.

For the fretting of the guts in children.

If when the childes teeth begin to grow, he chance to bite the nipple of the nurſes breaſt, there will bee an ulcer very contumacious and hard to be cured, becauſe that the ſucking of the childe, and the rubbing of the cloaths doe keep it alwaies raw; it muſt be cured with fomenting it with allome water, and then preſently after the fomentation putting thereupon a cover of leade, made like unto a hat, as they are here deſcribed, with many holes in the toppe, whereat both the milke, and alſo the ſanious matter that commeth from the ulcers may goe out, for lead it ſelfe will cure ulcers.

For the ulcers of the nipples or teats.

The figure of leaden Nipples to be put upon the Nipple or Teat of the Nurſe when it is ulcerated.



Children may be cauſed to ceaſe their crying foure manner of waies, that is to ſay, by giving them the teat, by rocking them in a cradle, by ſinging unto them, and by changing the cloaths and ſwathes wherein they are wrapped. They muſt not bee rocked too violently in the cradle, leſt that the milke that is ſucked ſhould be corrupted by the too violent motion, by reaſon whereof they muſt not be handled violently any other way, and not altogether prohibited or not ſuffered to cry. For by crying the breaſt and lungs are dilated and made bigger and wider, the naturall parts the ſtronger, and the braine, noſtrills, the eyes and mouth are purged, by the teares and filth that come from the eyes and noſtrills. But they muſt not bee permitted to cry long or fiercely, for feare of breaking the production of the *Peritonæum*, and thereby cauſing the falling downe of the guts into the cod, which rupture is called of the Greekes *Enterocele*, or of the caule, which the Greekes call *Epiplocele*.

What moderate crying worketh in the infant.

What immoderate crying cauſeth.

Chap. XXIIII.

Of the weaning of children.

Many are weaned in the eighteenth moneth, ſome in the twentieth, but all, or the moſt part, in the ſecond yeare, for then their teeth appeare, by whoſe preſence nature ſeemeth to require ſome harder meat than milke or pappe, wherewith children are delighted, and will feed more earneſtly thereon. But there is no certaine time of weaning of children. For the teeth of ſome will appeare ſooner, and ſome later; for they are prepared of nature for no other purpoſe than to chaw the meat. If children bee weaned before their teeth appeare, and bee fed with meat that is ſomewhat hard and ſolid, according to the judgement of *Avicen*, they are incident to many diſeaſes comming through crudity, becauſe the ſtomacke is yet but weake, and wanteth that preparation of the meates which is made in the mouth by chawing; which men of ripe yeers cannot want without offence: when the childe is two yeeres old, and the teeth appeare, if the childe more vehemently deſire harder meates, and doth feed on them with pleaſure & good ſucceſſe, he may be ſafely weaned; for it cannot be ſuppoſed that he hath this appetite of hard meats in vain, by the inſtinct of nature. Yet he may not be weaned without ſuch an appetite, if all other things be correſpondent, that is to ſay, his teeth and age, for thoſe things that are eaten without an appetite, cannot profit. But if the childe be weake, ſickly, or feeble, he ought not to be weaned. And when the meet time of weaning commeth, the nurſe muſt now and then uſe him to the teat, whereby he may leave it by little and little, and then let the teate be anointed or rubbed with bitter things, as with Aloes, water of the infuſion of *Colocynthus*, or worme-wood, or with muſtard, or ſoote ſteeped in water, or ſuch like. Children that are ſcabby in their heads, and over all their bodies, and which void much flegme at their mouth and noſtrills, and many excrements downwards, are like to be ſtrong and ſound of body; for ſo they are purged of excrementall humours: contrariwiſe, thoſe that are cleane and faire of body, gather the matter of many diſeaſes in their bodies, which in proceſſe of time will breake forth and appeare. Certainely by the ſodaine falling of ſuch matters into the backe-bone, many become crookebackt.

When children muſt be weaned

Why children muſt not be weaned before their teeth appeare.

How children muſt be weaned.

What children are ſtrong and ſound of body.

An often cauſe of ſudden crookedneſſe.

Chap. XXV.

By what ſignes it may bee knowne whether the childe in the wombe bee dead or alive.

If neither the Chirurgians hand, nor the mother can perceive the infant to move, if the waters bee flowed out, and ſecundine come forth, you may certainely affirme that the infant is dead in the wombe, for this is the moſt infallible ſigne of all others: for becauſe the child in the wombe doth breathe but by the artery of the navell, and the breath is received by the *Cotyledon* of the arteries of the wombe, it muſt of neceſſity come to paſſe that when the ſecundine is ſeparated from the infant, no aire or breath can come unto it. Wherefore ſo often as the ſecundine is excluded before the childe, you may take it for a certaine token of the death thereof: when the childe is dead, it will be more heavie to the mother than it was before when it was alive, becauſe it is now no more ſuſtained by the ſpirits and faculties wherewith before it was governed and ruled, for ſo we ſee dead men to be heavier than thoſe that are alive, & men that are weak through hunger and famine to be heavier than when they are well refreſhed, and alſo when the mother enclines her body any way, the infant falleth that way alſo even as it were a ſtone. The mother is alſo vexed with ſharpe paine from the privities even to the navell, with a perpetuall deſire of making water, and going to ſtoole, becauſe that nature is wholly buſied in

A moſt certaine ſign of the child dead in the wombe.

When the child is dead in the wombe hee is more heavie than he was before being alive.

That which is alive will not ſuffer that which is dead.

the expulſion or avoidance of that which is dead: for that which is alive will expell the dead ſo farre as it can from it ſelfe, becauſe the one is altogether different from the other; but likeneſſe, if any thing, conjoynes and unites things together: the genitalls are cold in touching, and the mother complaineth that ſhe feeleth a coldneſſe in her womb, by reaſon that the heat of the infant is extinguiſhed, wherewith before her heate was doubled: many filthy excrements come from her, and alſo the mothers breath ſtinketh, ſhe ſwouneth often, all which for the moſt part happen within three daies after the death of the childe: for the infants body will ſooner corrupt in the mothers wombe than it would in the open aire, becauſe that, according to the judgement of *Galen*, all hot and moiſt things, being in like manner encloſed in a hot and moiſt place, eſpecially if by reaſon of the thickeneſſe or ſtraiteneſſe of the place they cannot receive the aire, will ſpeedily corrupt. Now by the riſing up of ſuch vapours from the dead unto the braine and heart, ſuch accidents may ſoone follow, her face will be clean altered, ſeeming livid and ghaſtly, her dugs fall and hang looſe and lanke, and her belly will be more hard and ſwollen than it was before. In all bodies ſo putrefying, the naturall heat vaniſheth away, and in place thereof ſucceedeth a preternaturall, by the working whereof the putrefyed and diſſolved humours are ſtirred up into vapours, and converted into winde, and thoſe vapours, becauſe they poſſeſſe and fill more ſpace and roome (for naturaliſts ſay that of one part of water ten parts of aire are made) doe ſo puffe up the putrefyed body into a greater bigneſſe. You may note the ſame thing in bodies that are gangrenate, for they caſt forth many ſharpe vapours, yet neverthéleſſe they are ſwollen and puffed up.

Lib. de tumorib.

Why the belly of a woman will be more bigge when the child is dead within her, than it was before, when it was alive.

Now ſo ſoone as the Chirurgian ſhall know that the childe is dead by all theſe forenamed ſignes, he ſhall with all diligence endeavour to ſave the mother ſo ſpeedily as hee can, and if the Phyſitians cannot prevaile with potions, bathes, fumigations, ſternutatories, vomits, and liniments appointed to expell the infant, let him prepare himſelfe to the worke following; but firſt let him conſider the ſtrength of the woman, for if he perceive that ſhee bee weake and feeble by the ſmalneſſe of her pulſe, by her ſmall, ſeldome and cold breathing, and by the altered and death-like colour in her face, by her cold ſweats, and by the coldneſſe of the extreme parts, let him abſtaine from the worke, and onely affirme that ſhee will dye ſhortly; contrariwiſe, if her ſtrength be yet good, let him with all confidence and induſtry deliver her on this wiſe from the danger of death.

The ſignes of a woman that is weake.

Chap. XXVI.

Of the Chyrurgicall extraction of the childe from the wombe either dead or alive.

After what ſort the woman in travell muſt be placed when the child, being dead in her wombe, muſt be drawne out.

THerefore firſt of all the aire of the chamber muſt bee made temperate, and reduced unto a certaine mediocrity, ſo that it may neither be too hot nor too cold. Then ſhe muſt be aptly placed, that is to ſay, overthwart the bed ſide, with her buttockes ſomewhat high, having a hard ſtuffed pillow or boulſter under them, ſo that ſhe may be in a meane figure of ſituation, neither ſitting altogether upright, nor altogether lying along on her backe; for ſo ſhee may reſt quietly, and draw her breath with eaſe, neither ſhall the ligaments of the womb bee extended ſo as they would if ſhee lay upright on her backe, her heeles muſt bee drawn up cloſe to her buttocks, and there bound with broad and ſoft linnen rowlers. The rowler muſt firſt come about her neck, and then croſſe-wiſe over her ſhoulders, and ſo to the feet, and there it muſt croſſe again, and ſo be rowled about the legs and thighes, and then it muſt be brought up to the necke againe, and there made faſt, ſo that ſhe may not be able to move her ſelfe, even as one ſhould be tyed when he is to be cut of the ſtone. But that ſhee may not bee wearied, or leſt that her body ſhould yeeld or ſinke downe as the Chirurgian draweth the body of the infant from her, and ſo hinder the worke, let him cauſe her feet to bee ſet againſt the ſide of the bed,

How ſhe muſt be bound.

and then let ſome of the ſtrong ſtanders by hold her faſt by the legs and ſhoulders. Then that the aire may not enter into the wombe, and that the worke may bee done with the more decency, her privie parts & thighs muſt be covered with a warm double linnen cloath. Then muſt the Chirurgion, having his nailes cloſely pared, and his rings (if hee weare any) drawne off his fingers, and his armes naked, bare, and well anointed with oyle, gently draw the flappes of the necke of the wombe aſunder, and then let him put his hand gently into the mouth of the wombe, having firſt made it gentle and ſlippery with much oile; and when his hand is in, let him finde out the forme and ſituation of the childe, whether it be one or two, or whether it be a Mole or not. And when he findeth that he commeth naturally, with his head toward the mouth or orifice of the wombe, he muſt lift him up gently, and ſo turne him that his feet may come forwards, and when he hath brought his feet forwards, he muſt draw one of them gently out at the necke of the wombe, and then hee muſt binde it with ſome broad and ſoft or ſilken band a little above the heele with an indifferent ſlack knot, and when he hath ſo bound it, he muſt put it up againe into the wombe, then he muſt put his hand in againe, and finde out the other foote, and draw it alſo out of the wombe, and when it is out of the wombe, let him draw out the other againe whereunto he had before tyed the one end of the band, and when hee hath them both out, let him join them both cloſe together, & ſo by them by little & little let him draw all the whole body from the wombe. Alſo other women or Midwives may help the endeavour of the Chirurgion, by preſſing the patients belly with their hands downewards as the infant goeth out: and the woman her ſelfe by holding her breath, and cloſing her mouth and noſtrills, and by driving her breath downewards with great violence, may very much helpe the expulſion. I wiſh him to put backe the foot into the wombe againe after he hath tyed it, becauſe if that he ſhould permit it to remain in the necke of the womb, it would hinder the entrance of his hand when he putteth it in to draw out the other. But if there bee two children in the wombe at once, let the Chirurgian take heed leſt that he take not of either of them a legge, for by drawing them ſo, hee ſhall profit nothing at all, and yet exceedingly hurt the woman. Therefore that he may not bee ſo deceived, when hee hath drawne out one foot and tyed it, and put it up again, let him with his hand follow the band wherewithall the foot is tyed, and ſo goe unto the foot, and then to the groine of the childe, and then from thence he may ſoone finde out the other foot of the ſame child: for if it ſhould happen otherwiſe, he might draw the legges and the thighes out, but it would come no further, neither is it meet that hee ſhould come out with his armes along by his ſides, or bee drawne out on that ſort, but one of his armes muſt bee ſtretched out above his head, and the other down by his ſide, for otherwiſe the orifice of the womb when it were delivered of ſuch a groſſe trunke, as it would be when his body ſhould be drawne out with his armes along by his ſides, would ſo ſhrinke and draw it ſelfe when the body ſhould come unto the necke, onely by the accord of nature requiting union, that it would ſtrangle and kill the infant, ſo that hee cannot be drawne there-hence unleſſe it bee with a hooke put under, or faſtened under his chinne, in his mouth, or in the hollowneſſe of his eye. But if the infant lyeth as if hee would come with his hands forwards, or if his hands bee forth already, ſo that it may ſeeme hee may bee drawne forth eaſily that way, yet it muſt not be ſo done; for ſo his head would double backwards over his ſhoulders, to the great danger of his mother. Once I was called unto the birth of an infant, whom the midwives had aſſayed to draw out by the arme, ſo that the arme had been ſo long forth that it was gangrenate, whereby the childe dyed; I told them preſently that his arme muſt bee put in againe, and hee muſt bee turned otherwiſe. But when it could not bee put backe by reaſon of the great ſwelling thereof, and alſo of the mothers genitals, I determined to cut it off with an inciſion knife, cutting the muſcles as neare as I could to the ſhoulder, yet drawing the fleſh upwards, that when I had taken off the bone with a paire of cutting pincers, it might come downe againe to cover the ſhivered end of the bone, leſt otherwiſe when it were thruſt in againe into the wombe, it might hurt the mother. Which being done, I turned him with his feete forwards, and drew him out as is before ſayd. But if the tumour either naturally or by ſome

How the Chirurgion ought to prepare himſelfe and his patient to the drawing out of the child from the wombe.

How the infant that is dead in the womb muſt be turned, bound and drawne out.

A caution to avoid ſtrangling of the infant in drawing out the body.

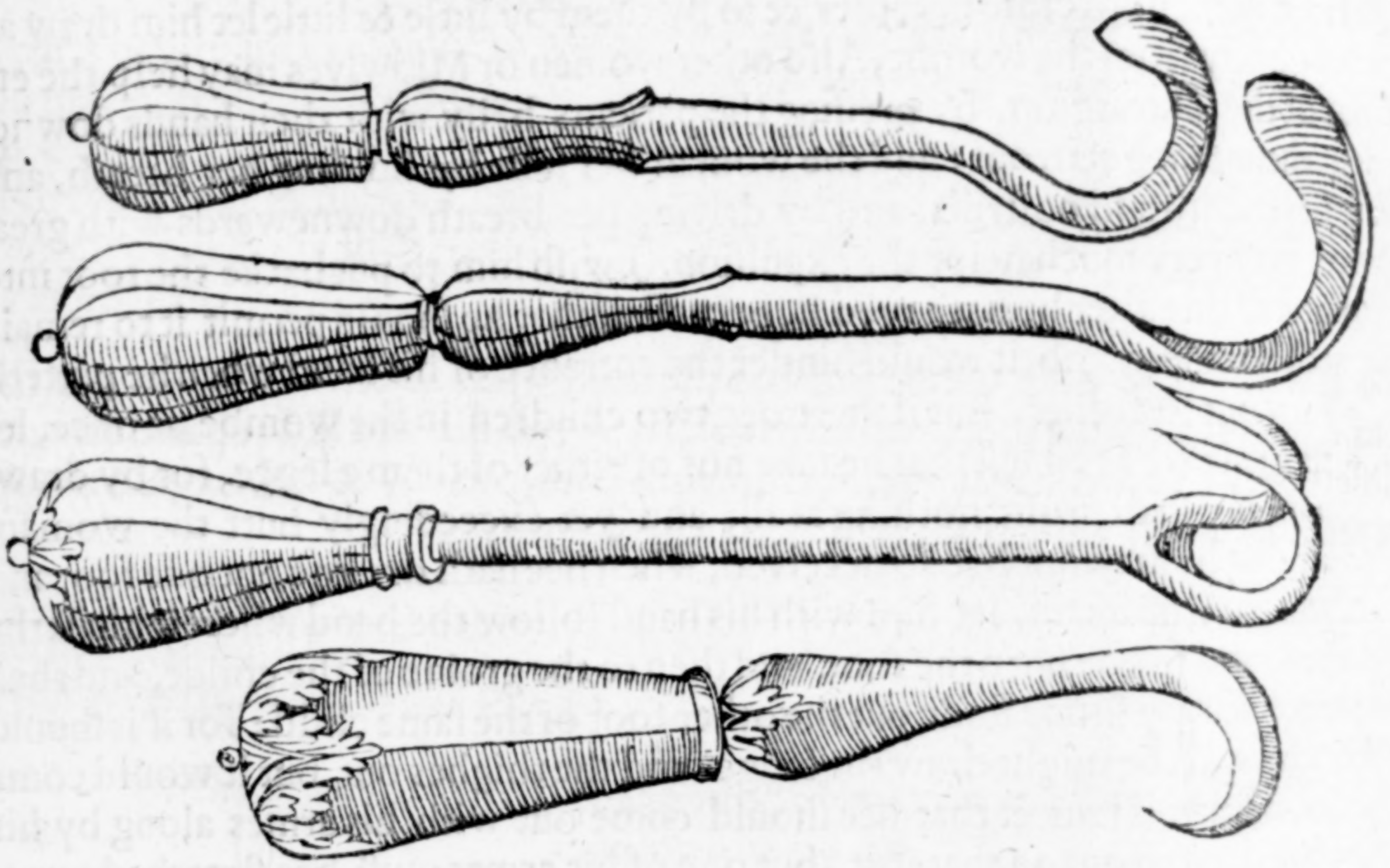
Why the child muſt not bee drawn out with his hands forwards.

A hiſtory.

To diminiſh the wind wherewith the infant being dead in the wombe, ſwelleth & is puffed up that he cannot be gotten out of the wombe.

accident, that is to ſay, by putrefaction, which may perchance come, bee ſo great that hee cannot bee turned according to the Chirurgions intention, nor be drawne out according as hee lyeth, the tumour muſt bee diminiſhed, and then hee muſt bee drawne out as is aforeſaid, and that muſt bee done at once. As for example, if the dead infant appeare at the orifice of the wombe, which our mydwives call the Garland, when it gapeth, is open and dilated, but yet his head being more great and puffed up with winde ſo that it cannot come forth, as cauſed to bee ſo through that diſeaſe which the Greeks call *Mucrophiſocephalos*, the Chirurgion muſt faſten a hooke under his chinne, or in his mouth, or elſe in the hole of his eye, or elſe, which is better and more expedient, in the hinder part of his head. For when the ſcull is ſo opened, there will bee a paſſage whereat the winde may paſſe out, and ſo when the tumour falleth and decreaſeth, let him draw the infant out by little and little, but not raſhly, leſt he ſhould break that whereon he hath taken hold: the figure of thoſe hookes is thus.

The forme of hookes for drawing out the infant that is dead in the wombe.

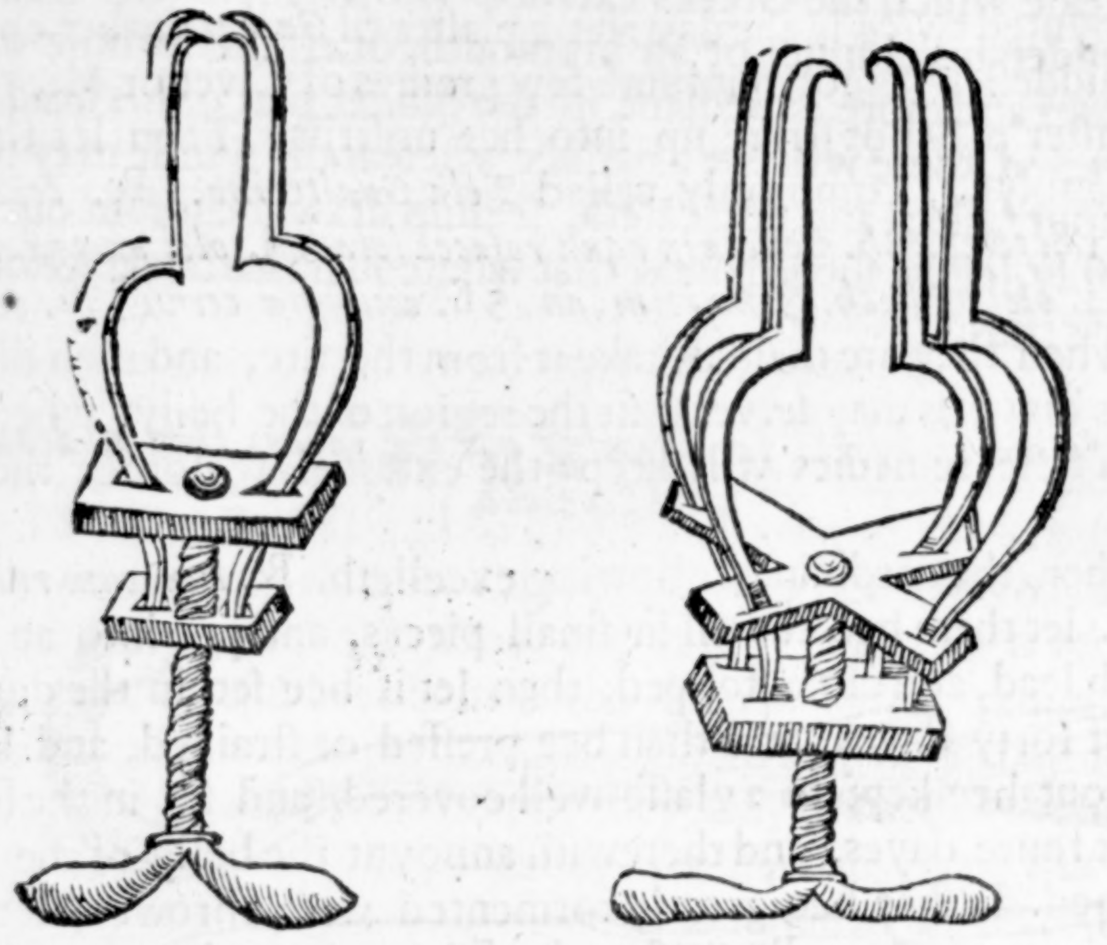


But if the breaſt bee troubled with the like fault, the hookes muſt bee faſtened about the chanell bone: if there bee a Dropſie or a Tympany in the belly, the hooks muſt bee faſtned either in the ſhort ribs, that is to ſay, in the muſcles that are betweene the ribbes, or eſpecially, if the diſeaſe doe alſo deſcend into the feete, about the bones that are above the groine; or elſe putting the crooked knife here pictured into the wombe with his left hand, let him make inciſion in the childs belly, and ſo get out all his entrals by the inciſion, for when hee is ſo bowelled, all the water that cauſed the dropſie will out. But the Chirurgion muſt do none of all theſe things but when the child is dead, and the woman that travelleth in ſuch danger that ſhee cannot otherwiſe be holpen.

How the head of the infant, if it remaine in the wombe ſeparated from the body, may be drawne out.

But if by any meanes it happeneth that all the infants members bee cut away by little and little, and that the head onely remaineth behinde in the wombe, which I have ſometimes againſt my will, and with great ſorrow ſeene, then the left hand being anoynted with oyle of Lillies or freſh butter muſt bee put into the wombe, wherewith the Chirurgion muſt find out the mouth, putting his fingers into it; then with his right hand hee muſt put up the hooke, according to the direction of the left hand, gently, & by little & little, and ſo faſten it in the mouth, eye, or under the chin, and when hee hath firmely fixed or faſtened it, hee muſt therewith draw out the head by little and little, for feare of looſening or breaking the part whereon hee hath hold. In ſtead of this hooke you may uſe the inſtruments that are here deſcribed, which therefore I have taken out of the Chirurgery of *Francis Dalechamps*, for they are ſo made, that they may eaſily take hold of a ſphæricall and round body with the branches, as with fingers.

Gryphons Talons, that is to ſay, inſtruments made to draw out the head of a dead infant that is ſeparated in the wombe from the reſt of the body.



But it is not very eaſie to take hold on the head when it remaineth alone in the wombe, by reaſon of the roundneſſe thereof, for it will ſlip and ſlide up and downe, unleſſe the belly be preſſed downe, and on both ſides, thereby to hold it unto the inſtrument, that it may with more facility take hold thereon.

Why the head being alone in the wombe, is more difficult to be drawne out.

CHAP. XXVII.

What muſt bee done unto the woman in travell preſently after her deliverance.

THere is nothing ſo great an enemy to a woman in travell, eſpecially to her whoſe child is drawne away by violence, as cold: wherefore with all care and diligence ſhee muſt bee kept and defended from cold. For after the birth, her body being voyde and empty, doth eaſily receive the ayre that will enter into every thing that is empty, and hence ſhee waxeth cold, her wombe is diſtended and puffed up, and the orifices of the veſſels thereof are ſhut and cloſed, whereof commeth ſuppreſſion of the after-birth, or other after purgations. And thereof commeth many grievous accidents, as hyſtericall ſuffocation, painefull fretting of the guts, feavers, and other mortall diſeaſes.

Cold an enemy to women in travell.

What accidents follow the taking of cold in a woman that is delivered of child.

What woman ſoever will avoyde that diſcommodity, let her hold her legges or thighes acroſſe, for in ſo doing, thoſe parts that were ſeparated will bee joyned and cloſe together againe. Let her belly bee alſo bound or rowled with a ligature of an indifferent breadth and length, which may keep the cold ayre from the wombe, and alſo preſſe the bloud out that is contained in all the ſubſtance thereof. Then give her ſome Capon broth or Caudle, with Saffron, or with the powder called *Pulvis ducis*, or elſe bread toaſted and dipped in wine wherein ſpice is brewed, for to reſtore her ſtrength, and to keepe away the fretting of the guts. When the ſecundine is drawne out, and is yet hot from the wombe, it muſt bee layd warme unto the region of the wombe, eſpecially in the winter, but in the ſummer, the hot skinne of a Weather newly killed muſt be laid unto all the whole belly, and unto the

Secundines muſt be laid to the region of the wombe whileſt they be warme.

region of the loynes. But then the curtaines of the bed muſt bee kept drawne, and all the windowes and doores of the chamber muſt bee kept ſhut with all diligence, that no cold ayre may come unto the woman that travelleth, but that ſhee may lye and take her reſt quietly. The Weathers ſkinne muſt bee taken away after that it hath lyen five or ſixe houres; and then all the region of her belly muſt bee annointed with the oyntment following.

Uuguents for the woman in travell that the region of the belly may not be wrinkled.

℞. *ſpermatis Ceti,* ℥ii. *olei amygdal. dulcium & hypericon. an.* ℥ i ß. *ſevi hircini.* ℥i. *olei myrtillor.* ℥i. *ceræ novæ quantum ſufficit*; make thereof an oyntment, wherewith let her bee annoynted twice in the day: let a plaſter of *Galbanum* bee applyed to the navell, in the middeſt whereof put ſome few graines of Civet or Muske, ſo that the ſmell of the plaſter may not ſtrike up into her noſtrils. Then let this medicine following bee applyed, commonly called *Tela Gualterina.* ℞. *ceræ novæ* ℥ iiii. *ſpermatis Ceti.* ℥ i ß. *terebinth. venetæ in aqua roſacea lotæ* ℥ ii. *olei amygdal. dulcium & hypericonis an.* ℥ i. *olei maſtich. & myrtini, an.* ℥ ß. *axungiæ cervi* ℥ iß. melt them all together, and when they are melted, take it from the fire, and then dippe a linnen cloth therein, as bigge as may ſerve to fit the region of the belly, whereunto it is to bee applyed. Theſe remedies will keepe the externall region of the belly from wrinkling.

The medicine called *Tela Gualterina.*

But of all other, the medicine following excelleth. ℞. *limacum rub.* ℔i. *florum anthos quart.* iii. let them bee cut all in ſmall pieces, and put into an earthen pot well nealed with lead, and cloſe ſtopped, then let it bee ſet in the dung of horſes for the ſpace of forty dayes, and then bee preſſed or ſtrained, and let the liqour that is ſtrayned out bee kept in a glaſſe well covered, and ſet in the ſunne for the ſpace of three or foure dayes, and therewith annoynt the belly of the woman that lyeth in child-bed. If ſhee bee greatly tormented with throwes, let the powder following bee given unto her. ℞. *aniſi conditi* ʒii. *nucis moſchat. cornu cervi uſt. an.* ʒi. ß. *nucleorum dactyllor.* ʒ iii. *ligni aloës & cinamomi an.* ʒ ii. make thereof a moſt ſubtle powder, let her take ʒi. thereof at once with white wine warme. Or, ℞. *rad. conſolidæ major.* ʒi ß. *nucleorum perſicorum, nucis moſchat. an.* ℈ii. *carab.* ℈ß. *ambræ græzæ gra.* iiii. make thereof a powder, let her take one dramme thereof at a time with white wine, or, if ſhee have a feaver, with the broth of a Capon. Let there be hot bagges applyed to the genitalls, belly and raynes; theſe bagges muſt bee made of millet and oates fryed in a frying-pan with a little white wine.

A powder for the fretting of the guts.

But if through the violence of the extraction the genitall parts bee torne, as ancient writers affirm it hath come to paſſe, ſo that the two holes, as the two holes of the privie parts and of the fundament have beene torne into one, then that which is rent muſt bee ſtitched up, and the wound cured according to art. Which is a moſt unfortunate chance for the mother afterwards, for when ſhee ſhall travell againe, ſhee cannot have her genitall parts to extend and draw themſelves in againe by reaſon of the ſcarre. So that then it will bee needfull that the Chirurgion ſhall againe open the place that was cicatrized, for otherwiſe ſhee ſhall never bee delivered, although ſhee ſtrive and contend never ſo much. I have done the like cure in two women that dwelt in Paris.

What muſt bee done when the groine is torne in child-birth.

Chap. XXVIII.

What cure muſt bee uſed to the Dugges and Teates of thoſe that are brought to bed.

To drive the milke downewards.

IF great ſtore and abundance of milke bee in the breaſts, and the woman bee not willing to nurſe her owne childe, they muſt bee annoynted with the unguent following, to repell the milke, and cauſe it to bee expelled through the wombe. ℞. *olei roſ. myrtini an.* ℥ iii. *aceti roſat.* ℥i. incorporate them together, and therewith annoynt the dugges foure times a day, and preſently after the annoynting beſprinkle them with the powder of myrtils, and then apply the plaſter following. ℞. *pulv. maſtichini,*

nuc.

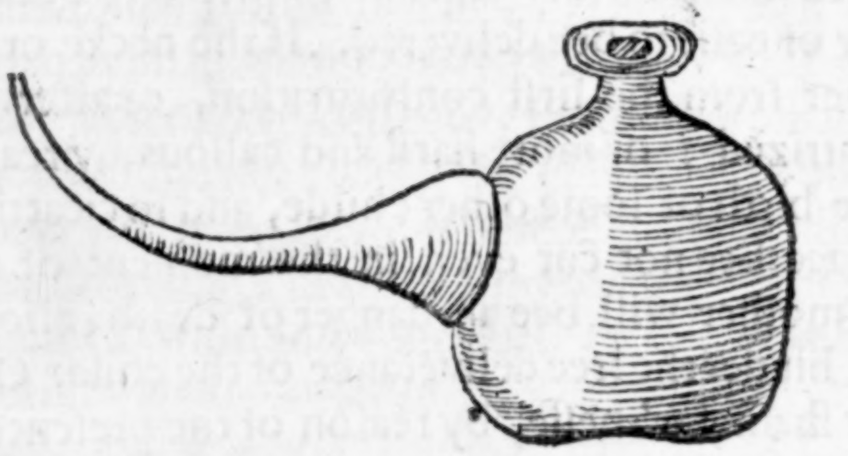
nucis moſchat. an. ʒii. *nucis cupreſſi* ʒiii. *balauſt. myrtill. an.* ʒ iß. *Ireos, florent.* ℥ß. *olei myrtini* ℥ iii. *terebinth. veneta* ℥ ii. *ceræ novæ quantum ſufficit*, make thereof a ſoft plaſter.

The leaves of brooke-lime, creſſes and boxe boyled together in urine and vinegar, are thought a preſent remedy for this purpoſe, that is to ſay, to draw the milke from the breaſts. And others take the clay that falleth downe into the bottome of the trough wherein the grindſtone, whereon ſwords are grownd, turneth, and mixe it with oyle of roſes, and apply it warme unto the dugges, which in ſhort ſpace, as it is thought, will aſſwage the paine, ſtay the inflammation, and drive the milke out of the dugges. The decoction of ground Ivie, Peruwincle, Sage, redde Roſes and roach Alome being prepared in oxycrate, and uſed in the forme of a fomentation, is thought to performe the like effect: the like vertue have the lees of red wine, applyed to the dugges with vinegar, or the diſtilled water of unripe Pine-apples applyed to the breaſts with linnen clothes wet therein, or hemlocke beaten and applyed with the young and tender leaves of a gourd.

By what reaſon, and which way cupping-glaſſes, being faſtened on the groine or above the navell, do draw the milke out of the breaſts.

This medicine following is approved by uſe: Take the leaves of Sage, Smallage, Rue, and Chervill, and cut or chop them very ſmall, and incorporate them in vinegar and oyle of Roſes, and ſo apply it warme to the breaſt, and renue it thrice a day. In the meane time let Cupping-glaſſes bee applyed to the inner ſide of the thigh and groine, and alſo above the navell. For this is very effectuall to draw the milke out of the breaſts into the wombe by the veines, whereby the wombe communicateth with the breaſts. Moreover, they may let children or little welpes ſucke their breaſts, whereby they may draw out the milke that is fixed faſt in their dugges, in ſteed whereof wee have invented this inſtrument of glaſſe, wherewith, when the broader orifice is faſtened or placed on the breaſt or dugge, and the pipe turned upwards towards her mouth, ſhee may ſuck her owne breaſts her ſelfe.

The forme of a little glaſſe, which being put on the nipple, the woman may ſucke her owne breaſts.



In ſteede of this inſtrument, a violl of glaſſe being firſt made warme, and the mouth thereof applyed to the nipple or teat, by reaſon of the heate and wideneſſe thereof will draw the milke forth into the bottome thereof, as it were by a certaine ſucking. The after purgations being firſt evacuated, which is done for the moſt part within twenty dayes after the birth, if the woman bee not in danger of a feaver, nor have any other accident, let her enter into a bath, made of marjerome, mints, ſage, roſemary, mugwurt, agrimonie, pennyroyall, the flowers of chamomile, melilote, dill, being boyled in moſt pure and cleare running water. All the day following let another ſuch like bath bee prepared, whereunto let theſe things following bee added. ℞. *farini fabarum & aven. an.* ℔. iii. *farin. orobi, lupinor. & gland. an.* ℔. i. *aluminis roch.* ʒiiii. *ſalis com.* ℔. ii. *gallarum, nucum cupreſſi, an.* ℥iii. *roſar. rub.* m. vi. *chariophyl. nucum moſchat. an.* ʒ iii. boyle them all in common water, then ſew them all in a cleane linnen cloth, as it were in a bagge, and caſt them therein into the bath wherein Iron red hot hath beene extinguiſhed, and let the woman that hath lately travelled ſit downe therein ſo long as ſhee pleaſeth, and when ſhee commeth out, let her bee layd warme in bedde, and let her take ſome preſerved Orange pill, or bread toaſted and dipped in Ipocras, or in wine brewed with ſpices, and then let her ſweate, if the ſweate will come forth of its owne accord.

Aſtringent fomentations for the privie parts.

On the next day let aſtringent fomentations bee applyed to the genitals on this wiſe prepared. ℞. *gallar. nucum Cupreſſi, corticum granat. an.* ℥ i. *roſar. rub.* m i. *thymi, majoran. an.* m. ß. *aluminis rochæ, ſalis com. an.* ʒ ii. boyle them all together in redde wine, and make thereof a decoction for a fomentation, for the forenamed uſe. The diſtilled liquor following is very excellent and effectuall to confirme and to draw in the dugges, or any other looſe parts. ℞. *charyophyl. nucis moſchat. nucum cupreſſi. an.* ℥ i ß. *maſtich.* ℥ ii. *alumin. roch.* ℥ i ß. *glandium & corticis querni, an.* ℔ ß. *roſar. rubr.* m. i. *cort. granat.* ℥ ii. *terræ ſigillat.* ℥ i. *cornu cervi uſti* ℥ ß. *myrtillor. ſanguinis dracon. an.* ℥ i. *boli armeni.* ℥ ii. *ireos florent.* ℥ i. *ſumach. berber. Hyppuris, an.* m. ß. *conquaſſentur omnia, & macerentur ſpatio duorum dierum. in* ℔ i ß. *aquæ roſarum* ℔ ii. *prunorum ſyveſtr. meſpilorum, pomorum quernorum, &* ℔ ß. *aquæ fabrorum, aceti deniquefortiſs.* ℥ iv. afterward diſtill it over a gentle fire, and keep the diſtilled liquor for your uſe, wherewith let the parts be fomented twice in a day. And after the fomentation, let wollen clothes or ſtupes of linnen cloth be dipped in the liquor, and then preſſed out and laid to the place. When all theſe things are done and paſt, the woman may againe keep company with her husband.

A diſtilled liquor for to draw together the dugs that are looſe and ſlacke.

Chap. XXIX.

What the cauſes of difficult and painefull travell in child-birth are.

The cauſes of the difficult child-birth that are in the woman that travelleth.

THe fault dependeth ſometimes on the mother, and ſometimes on the infant or childe within the wombe. On the mother, if ſhee bee more fat, if ſhee bee given to gurmundize or great eating, if ſhe be too leane or yong, as *Savanarola* thinketh her to bee, that is great with childe at nine yeares of age, or unexpert, or more old, or weaker than ſhee ſhould bee, eyther by nature or by ſome accident: as by diſeaſes that ſhee hath had a little before the time of child-birth, or with a great fluxe of bloud. But thoſe that fall in travell before the full and prefixed time, are very difficult to deliver, becauſe the fruit is yet unripe, and not ready or eaſie to bee delivered. If the necke or orifice of the wombe bee narrow, eyther from the firſt conformation, or afterwards by ſome chance, as by an ulcer cicatrized: or more hard and callous, by reaſon that it hath beene torne before at the birth of ſome other childe, and ſo cicatrized againe, ſo that if the cicatrizced place bee not cut even in the moment of the deliverance, both the childe and the mother will bee in danger of death; alſo the rude handling of the mydwife may hinder the free deliverance of the child. Oftentimes women are letted in travell by ſhamefac'tneſſe, by reaſon of the preſence of ſome man, or hate to ſome woman there preſent.

The paſsions of the mind hinder the birth.

If the ſecundine bee pulled away ſooner than it is neceſſary, it may cauſe a great fluxe of bloud to fill the wombe, ſo that then it cannot performe his excluſive faculty, no otherwiſe than the bladder when it is diſtended by reaſon of overabundance of water that is therein, cannot caſt it forth, ſo that there is a ſtoppage of the urine. But the wombe is much rather hindred, or the faculty of child-bith is ſtopped or delayed, if together with the ſtopping of the ſecundine, there be either a mole or ſome other body contrary to nature in the wombe. In the ſecundines of two women whom I delivered of two children that were dead in their bodies, I found a great quantity of ſand like unto that that is found about the banks of rivers, ſo that the gravell or ſand that was in each ſecundine was a full pound in weight.

The cauſes of difficult child-birth that are in the infant.

Alſo the infant may bee the occaſion of difficult child-birth, as, if too bigge, if it come overthwart, if it come with its face upwards, and its buttocks forwards, if it come with its feet and hands both forwards at once, if it be dead and ſwolne by reaſon of corruption, if it bee monſtrous, if it have two bodies or two heads, if it bee manifold or ſeven-fold, as *Albucraſis* affirmeth hee hath ſeene, if there bee a mole annexed

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annexed thereto, if it be very weake, if when the waters are flowed out, it doth not move or ſtirre, or offer its ſelfe to come forth. Yet notwithſtanding, it happeneth ſometimes that the fault is neither in the mother nor the childe, but in the aire, which being cold, doth ſo binde, congeale and make ſtiffe the genitall parts, that they cannot bee relaxed: or, being contrariwiſe too hot, it weakeneth the woman that is in travell, by reaſon that it waſteth the ſpirits, wherein all the ſtrength conſiſteth: or in the ignorant and unexpert mydwife, who cannot artificially rule and governe the endeavours of the woman in travell.

The externall cauſes of diffi-cult child-birth.

The birth is wont to bee eaſie, if it bee in the due and prefixed naturall time, if the childe offer himſelfe luſtily to come forth with his head forwards, preſently after the waters are come forth, and the mother in like manner luſty and ſtrong: thoſe which are wont to bee troubled with very difficult child-birth, ought a little before the time of the birth, to goe into an halfe tub filled with the decoction of mollifying rootes and ſeeds, to have their genitals, wombe, and necke thereof to bee anoynted with much oyle, and the inteſtines that are full and loaded muſt bee unburthened of the excrements, and then the expulſive faculty provoked with a ſharpe glyſter, that the tumours and ſwelling of the birth concurring therewith, the more eaſie excluſion may be made. But I like it rather better, that the woman in travell ſhould be placed in a chaire that hath the backe thereof leaning backwards, than in her bed, but the chair muſt have a hole in the bottome, whereby the bones that muſt be dilated in the birth, may have more freedome to cloſe themſelves againe.

Which is an ea-ſie birth.

What cauſeth eaſineſſe of child-birth.

CHAP. XXX.

The cauſes of Abortion or untimely birth.

ABortion or untimely birth is one thing, and effluxion another. They call abortion the ſudden excluſion of the childe already formed and alive, before the perfect maturity thereof. But that is called effluxion, which is the falling downe of ſeeds mixed together and coagulated but for the ſpace of a few dayes, onely in the formes of membranes or tunicles, congealed bloud, and of an unſhapen or deformed piece of fleſh; the mydwives of our countrey call it a falſe branch or budde. This effluxion is the cauſe of great paine and moſt bitter and cruell torment to the woman: leaving behinde it weakneſſe of body farre greater than if the childe were borne at the due time. The cauſes of abortion or untimely birth, whereof the the child is called an abortive, are many, as a great ſcouring, a ſtrangury joyned with heate and inflammation, ſharpe fretting of the guts, a great and continuall cough, exceeding vomiting, vehement labour in running, leaping, and dauncing, and by a great fall from on high, carrying of a great burthen, riding on a trotting horſe, or in a Coach, by vehement, often and ardent copulation with men, or by a great blow or ſtroke on the belly. For all theſe & ſuch like vehement and inordinate motions diſſolve the ligaments of the wombe, and ſo cauſe abortion or untimely birth.

What Abortion is.

What Effluxion is.

Women are in more paine by reaſon of the ef-fluxion than at the true birth.

The cauſes of Abortion.

Alſo whatſoever preſſeth or girdeth in the mothers belly, and therewith alſo the wombe that is within it, as are thoſe Ivory or Whale-bone buskes, which women weare on their bodies, thereby to keepe downe their bellies; by theſe and ſuch like things the childe is letted or hindred from growing to his full ſtrength, ſo that by expreſſion, or as it were by compulſion, hee is often forced to come forth before the legitimate and lawfull time. Thundering, the noyſe of the ſhooting of great Ordnance, the ſound, and vehement noyſe of the ringing of Bells conſtraine women to fall in travell before their time, eſpecially women that are young, whoſe bodies are ſoft, ſlacke and tenderer than thoſe that bee of riper yeares. Long and great faſting, a great fluxe of bloud, eſpecially when the infant is growne ſomewhat great: but if it bee but two moneths old, the danger is not ſo great, becauſe then hee needeth not ſo great quantity of nouriſhment, alſo a long diſeaſe of the mother, which conſumeth the bloud, cauſeth the childe to come forth being deſtitute of

Girding of the belly may cauſe untimely birth.

ſtore of nouriſhment before the fit time. Moreover, fulneſſe, by reaſon of the eating great ſtore of meates, often maketh or cauſeth untimely birth; becauſe it depraveth the ſtrength, and preſſeth down the child: as likewiſe the uſe of meats that are of an evill juice, which they luſt or long for. But bathes, becauſe they relaxe the ligaments of the wombe, and hot houſes, for that the fervent and choaking ayre is received into the body, provoke the infant to ſtrive to goe forth to take the cold ayre, and ſo cauſe abortion.

How bathes & hot houſes cauſe untimely birth.

Hip. aph. 53. & 37 ſect 5.
Hip. aph 45 ſe. 5.
Hip. aph. 33. ſe. 5.

What women ſoever, being indifferently well in their bodies, travell in the ſecond or third moneth without any manifeſt cauſe, thoſe have the Cotylidones of their womb full of filth and matter, and cannot hold up the infant, by reaſon of the weight thereof, but are broken: Moreover, ſudden or continuall perturbations of the minde, whether they bee through anger or feare, may cauſe women to travell before their time, and are accounted as the cauſes of abortions, for that they cauſe great and vehement trouble in the body. Thoſe women that are like to travell before their time, their dugs will wax little: therefore when a woman is great with childe, if her dugs ſuddenly wax ſmall or ſlender, it is a ſigne that ſhee will travell before her time; the cauſe of ſuch ſhrinking of the dugs is, that the matter of the milke is drawne back into the wombe, by reaſon that the infant wanteth nouriſhment to nouriſh and ſuccour it withall. Which ſcarcity the infant not long abiding, ſtriveth to goe forth to ſeek that abroad which he cannot have within, for among the cauſes which do make the infant to come out of the womb, thoſe are moſt uſually named with *Hippocrates*, the neceſſity of a more large nutriment and aire.

Women are in more pain at the untimely birth than at the due time of birth.

The errour of the firſt child-birth continues afterwards.

A plaſter ſtaying the infant in the wombe.

What children are ten or eleven moneths in the wombe.

A male will bee borne ſooner than a female.

Therfore if a woman that is with child have one of her dugs ſmall, if ſhe have two children, ſhe is like to travell of one of them before the full and perfect time: ſo that if the right dug be ſmall, it is a man child, but if it be the left dug it is a female. Women are in farre more paine when they bring forth their children before the time, than if it were at the full and due time, becauſe that whatſoever is contrary to nature, is troubleſome, painefull, and alſo oftentimes dangerous. If there be any errour committed at the firſt time of childe-birth, it is commonly ſeene that it happeneth alwayes after at each time of child-birth. Therefore, to find out the cauſes of that errour, you muſt take the counſell of ſome Phyſician, and after his counſell endeavour to amend the ſame. Truly this plaſter following being applyed to the reines doth confirme the wombe, and ſtay the infant therein. ℞. *ladani* ʒ ii. *galang.* ℥ i. *nucis moſchat. nucis cupreſſi, boli armeni, terræ ſigill. ſanguin. dracon. balauſt. an.* ʒ ß. *acatiæ, pſidiorum, hypociſtid. an.* ℥ i. *maſtich. myrrhæ, an.* ʒ ii. *gummi arabic.* ʒ i. *terebinth. venet.* ʒ ii. *picis naval.* ℥ i. ß. *ceræ quantum ſufficit, fiat emplaſt. ſecundem artem*; ſpread it for your uſe upon leather. If the part begin to itch, let the plaſter be taken away, & in ſtead thereof uſe *unguent. roſat.* or *refrig. Galen.* or this that followeth. ℞. *olei myrtini, maſtich. cydonior. an.* ℥ i. *hypociſt. boli armen. ſang. dracon. acatiæ, an.* ʒ i. *ſant. citrini* ℥ ß. *ceræ quant. ſuf.* make thereof an oyntment according unto art. There are women that beare the child in their wombe ten or eleven whole moneths, and ſuch children have their conformation of much and large quantity of ſeede: wherefore they will bee more bigge, great and ſtrong, and therefore they require more time to come to their perfection and maturity; for thoſe fruits that are great will not bee ſo ſoone ripe as thoſe that are ſmall. But children that are ſmall and little of body do often come to their perfection and maturity in ſeven or nine months: if all other things are correſpondent in greatneſſe and bigneſſe of body, it happeneth for the moſt part that the woman with child is not delivered before the ninth moneth bee done, or at the leaſtwiſe in the ſame moneth. But a male child will bee commonly borne at the beginning, or a little before the beginning of the ſame moneth, by reaſon of his engrafted heat which cauſeth maturity and ripeneſſe. Furthermore, the infant is ſooner come to maturity and perfection in a hot woman than in a cold, for it is the property of heat to ripen.

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followeth. ℞. *olei*
. acatiæ, an. ʒ i. *ſant.*
unto art. There are
moneths, and ſuch
f ſeede : wherefore
equire more time to
great will not bee ſo
little of body do of-
ns : if all other things
eth for the moſt part
neth bee done, or at
nmonly borne at the
by reaſon of his en-
e, the infant is ſooner
, for it is the proper-

CHAP.

CHAP. XXXI.

How to preſerve the infant being in the wombe, when the mother is dead.

If all the ſignes of death appeare in the woman that lieth in travell, and cannot be delivered, there muſt then be a Chirurgian ready and at hand, which may open her body ſo ſoone as ſhee is dead, whereby the infant may be preſerved in ſafety ; neither can it bee ſuppoſed ſufficient if the mothers mouth and privie parts bee held open ; for the infant being encloſed in his mothers wombe, and compaſſed with the membranes, cannot take his breath, but by the contractions and dilatations of the artery of the navell. But when the mother is dead, the lungs doe not execute their office and function : therefore they cannot gather in the aire that compaſſeth the body by the mouth or *aſpera arteria* into their owne ſubſtance, or into the arteries that are diſperſed throughout the body thereof, by reaſon whereof it cannot ſend it unto the heart by the veiny artery which is called *arteria venalis* : for if the heart want aire, there cannot bee any in the great artery which is called *arteria aorta*, whoſe function it is to draw it from the heart ; alſo by reaſon thereof it is wanting in the arteries of the wombe, which are as it were the little conduits of that great artery, whereinto the aire that is brought from the heart is derived, and floweth in unto theſe little ones of all the body, and likewiſe of the wombe. Wherefore it muſt of neceſſity follow that the aire is wanting to the cotyledons of the ſecundines, to the arterie of the infants navell, the iliacke arteries alſo, and therefore unto his heart, and ſo unto all his body : for the aire being drawne by the mothers lungs, is accuſtomed to come to the infant by this continuation of paſſages. Therefore becauſe death maketh all the motions of the mothers body to ceaſe, it is farre better to open her body ſo ſoone as ſhee is dead, beginning the inciſion at the cartelage, *Xiphoides*, or breaſt-blade, and making it in a forme ſemicircular, cutting the skinne, muſcles and *peritonæum*, not touching the guts : then the wombe being lifted up, muſt firſt be cut, leſt that otherwiſe the infant might perchance be touched or hurt with the knife.

Why it is not ſufficient to preſerve life in the childe to hold open the mouth and privie parts of the mother ſo ſoone as ſhe is dead and the childe alive in her body.

How the belly of the woman that dieth in travell muſt be cut open to ſave the childe.

You ſhall oftentimes finde the childe unmoveable, as though hee were dead ; but not becauſe he is dead indeed, but by reaſon that he, being deſtitute of the acceſſe of the ſpirits by the death of the mother, hath contracted a great weakeneſſe : yet you may know whether hee be dead indeed or not, by handling the artery of the navell, for it will beat and pant if he be alive, otherwiſe not ; but if there be any life yet remaining in him, ſhortly after he hath taken in the aire, and is recreated with the acceſſe thereof, he will move all his members, and alſo all his whole body. In ſo great a weakeneſſe or debility of the ſtrength of the childe, the ſecundine muſt not bee ſeparated as yet from the childe, by cutting the navell ſtring, but it muſt rather be laid cloſe to the region of the belly thereof, that thereby the heat (if there be any jot remaining) may bee ſtirred up againe. But I cannot ſufficiently marvaile at the inſolency of thoſe that affirme that they have ſeene women whoſe bellies and wombe have bin more than once cut, and the infant taken out, when it could no otherwiſe be gotten forth, and yet notwithſtanding alive; which thing there is no man can perſwade me can be done, without the death of the mother, by reaſon of the neceſſary greatneſſe of the wound that muſt be made in the muſcles of the belly, and ſubſtance of the wombe, for the wombe of a woman that is great with childe, by reaſon that it ſwelleth, and is diſtended with much blood, muſt needs yeeld a great flux of blood, which of neceſſity muſt be mortall. And to conclude, when that the wound or inciſion of the wombe is cicatrized, it will not permit or ſuffer the womb to be dilated or extended to receive or beare a new birth. For theſe and ſuch like other cauſes, this kinde of cure, as deſperate and dangerous, is not (in mine opinion) to be uſed.

How it may bee known whether the infant be alive or not.

CHAP.

Chap. XXXII.

Of ſuperfœtation.

What ſuperfœtation is.

A womans wombe is not diſtinguiſhed into divers cels.

The reaſon of ſuperfœtation.

Lib. de ſuperfœtationibus.

Why the womb after the conception of the ſeed, doth many times afterwards open.

SUperfœtation is when a woman doth beare two or more children at one time in her wombe, and they bee encloſed each in his ſeverall ſecundine: but thoſe that are included in the ſame ſecundine, are ſuppoſed to bee conceived at one and the ſame time of copulation, by reaſon of the great and copious abundance of ſeed, and theſe have no number of daies between their conception & birth, but all at once. For as preſently after meat the ſtomacke which is naturally of a good temper, is contracted or drawn together about the meate, to comprehend it on every ſide, though ſmall in quantity, as it were by both hands, ſo that it cannot rowle neither unto this or that ſide; ſo the wombe is drawne together unto the conception about both the ſeeds, as ſoone as they are brought into the capacity thereof, and is ſo drawne in unto it on every ſide, that it may come together into one body, not permitting any portion thereof to goe into any other region or ſide, ſo that by one time of copulation the ſeed that is mixed together, cannot engender more children than one, which are devided by their ſecundines. And moreover, becauſe there are no ſuch cells in the wombes of women, as are ſuppoſed, or rather knowne to bee in the wombs of beaſts, which therefore bring forth many at one conception or birth. But now if any part of the womans wombe doth not apply and adjoine it ſelfe cloſely to the conception of the ſeed already received, leſt any thing ſhould be given by nature for no purpoſe, it muſt of neceſſity follow that it muſt be filled with aire, which will alter and corrupt the ſeeds. Therefore the generation of more than one infant at a time, having every one his ſeverall ſecundine, is on this wiſe. If a woman conceave by copulation with a man as this day, and if that for a few daies after the conception, the orifice of the wombe be not exactly ſhut, but rather gape a little, and if ſhee doe then uſe copulation againe, ſo that at both theſe times of copulation there may be an effuſion or perfect mixture of the fertile ſeed in the wombe, there will follow a new conception, or ſuperfœtation. For ſuperfœtation is no other thing than a certaine ſecond conception, when the woman already with childe, againe uſeth copulation with a man, and ſo conceiveth againe, according to the judgement of *Hippocrates.* But there may be many cauſes alledged why the wombe which did joyne and cloſe doth open and unloſe it ſelfe againe. For there bee ſome that ſuppoſe the wombe to be open at certaine times after the conception, that there may be an iſſue out for certaine excrementall matters that are contained therein, and therefore that the woman that hath ſo conceived already, and ſhall then uſe copulation with a man againe, ſhall alſo conceive againe.

Lib. 7. cap. 11.

Others ſay that the wombe of it ſelfe, and of its own nature is very deſirous of ſeed or copulation, or elſe being heated or enflamed with the pleaſant motion of the man moving her thereto, doth at length uncloſe it ſelfe to receive the mans ſeed: for likewiſe it happeneth many times that the orifice of the ſtomack being ſhut after eating, is preſently unlooſed again, when other delicate meats are offered to be eaten: even ſo may the wombe uncloſe it ſelfe againe at certain ſeaſons, whereof come manifold iſſues, whoſe time of birth and alſo of conception are different. For as *Pliny* writeth, when there hath bin a little ſpace between two conceptions, they are both haſtened, as it appeared in *Hercules* and his brother *Iphicles*; and in her, which having two children at a birth, brought forth one like unto her husband, and another like unto the adulterer. And alſo in the Procomeſian ſlave or bond-woman, who by copulation on the ſame day brought forth one like unto her maſter, and another like unto his ſteward: and in another who brought forth one at the due time of childe-birth, and another at five moneths end. And againe in another, who bringing forth her burthen on the ſeventh moneth, brought forth two more in the moneths following. But this is a moſt manifeſt argument of ſuperfœtation, that as many children as are in the wombe (unleſſe they bee twinnes of the ſame ſexe) ſo many ſecundines are there, as I have often ſeene my ſelfe. And it is very likely that if they were conceived in the ſame moment of time, that they ſhould all bee included in one ſecundine. But when a woman hath more children than two at one burden, it ſeemeth to bee a monſtrous thing, becauſe that nature hath given her but two breaſts. Although wee ſhall hereafter rehearſe many examples of more numerous births.

Chap. XXXIII.

Of the tumour called Mola, *or a Mole growing in the wombe of Women.*

The reaſon of the name.

OF the greeke word *Myle*, which ſignifieth a Mill-ſtone, this tumour called *Mola* hath its name: for it is like unto a Mill-ſtone both in the round or circular figure, and alſo in hard conſiſtence, for the which ſelfe ſame reaſon the whirle-bone of the knee is called of the Latines *mola*, and of the Greeks *Myle*. But the tumor called *Mola*, whereof we heere entreate, is nothing elſe but a certain falſe conception of deformed fleſh, round and hard, conceived in the wombe as it were rude and unperfect, and not diſtinguiſhed into members, comming by corrupt, weake, and diſeaſed ſeed, and of the immoderate fluxe of the termes, as it is defined by *Hippocrates*. This is encloſed in no ſecundine, but as it were in its owne skinne.

What a *mola* is.

Lib. de ſteril.

There are ſome that thinke the *Mola* to bee engendered of the concourſe or mixture of the womans ſeed and menſtruall blood, without the communication of the mans ſeed. But the opinion of *Galen* is, that never any man ſaw a woman conceive either a *Mola*, or any other ſuch thing, without copulation of man, as an hen laieth eggs without a cock: for the onely cauſe and originall of that motion is in the mans ſeed, and the mans ſeed doth onely miniſter matter for the generation thereof. Of the ſame opinion is *Avicen*, who thinketh the *Mola* to be made by the confluxion of the mans ſeed that is unfertile, with the womans; when as it, becauſe unfruitfull, onely puffes up or makes the womans ſeed to ſwell as leaven into a greater bigneſſe, but not into any perfect ſhape or forme. Which is alſo the opinion of *Fernelius*, by the decrees of *Hippocrates* and *Avicen*: for the immoderate fluxes of the courſes are conducing to the generation of the *mola*, which overwhelming the mans ſeed, being now unfruitfull and weake, doth conſtraine it to deſiſt from its enterpriſe of conformation already begun, as vanquiſhed or wholly overcome: for the generation of the *mola* commeth not of a ſimple heat working upon a clammy and groſſe humour, as wormes are generated; but of both the ſeeds, by the efficacy of a certaine ſpirit, after a ſort prolificall, as may be underſtood by the membranes wherein the *mola* is encloſed, by the ligaments whereby many times it is faſtened or bound to the true conception or child, engendered or begotten by ſuperfœtation; and finally, by the encreaſe, and great and ſluggiſh waight. If all men were not perſwaded that the conflux of a mans ſeed muſt of neceſſity concurre to the generation of the *mola*, it would bee no ſmall cloake or cover to women to avoide the ſhame and reproach of their light behaviour.

Cap. 7. lib. 4. de uſu part.

How the *mola* is engendered.

Chap. XXXIIII.

How to diſcerne a true conception from a falſe conception or Mola.

The ſignes of a *mola* encloſed in the wombe.

WHen the *mola* is encloſed in the wombe, the ſame things appear as in the true and lawfull conception. But the more proper ſignes of the *mola* are theſe: there is a certaine pricking paine, which at the beginning troubleth the belly as if it were the cholicke, the belly will ſwell ſooner than it would if it were the true iſſue, and will be diſtended with greater hardneſſe, and is more difficult and troubleſome to carry, becauſe it is contrary to nature, By what faculty the wombe moveth.

How the motion of the *mola* differeth from the motion of the infant in the wombe.

The *mola* doth turne to each ſide of the wombe, as the ſituation of the body is.

and voyd of ſoule or life. Preſently after the conception the dugges ſwell and puffe up, but ſhortly they fall and become lanke and laxe; for nature ſendeth milk thither in vaine, becauſe there is no iſſue in the wombe that may ſpend the ſame. The *mola* will move before the third month, although it be obſcurely, but the true conception will not: but this motion of the *mola* is not of the intellectuall ſoule, but of the faculty of the wombe, and of the ſpirit of the ſeed diſperſed through the ſubſtance of the *mola*; for it is nouriſhed and encreaſeth after the manner of plants, but not by reaſon of a ſoul or ſpirit ſent from above, as the infant doth. Moreover, that motion that the infant hath in its due and appointed time, differeth much from the motion of the *mola*; for the childe is moved to the right ſide, to the left ſide, and to every ſide gently, but the *mola*, by reaſon of its heavineſſe, is fixed, and rowleth in manner of a ſtone, carried by the weight thereof unto what ſide ſoever the woman declineth her ſelfe. The woman that hath a *mola* in her wombe doth daily waxe leaner and leaner in all her members, but eſpecially in her legges, although notwithſtanding towards night they will ſwell, ſo that ſhee will bee very ſlow or heavie in going, the naturall heat forſaking the parts remote from the heart by little and little; and moreover, her belly ſwells, by reaſon that the menſtruall matter reſteth about thoſe places, and is not conſumed in the nouriſhment of the *mola*: ſhe is ſwolne as if ſhe had the dropſie, but that it is harder, and doth not riſe againe when it is preſſed with the fingers. The navell doth not ſtand out as it will do when the true iſſue is conteined in the womb, neither do the courſes flow as they ſometimes do in the true conception; but ſometimes great fluxes happen, which eaſe the waight of the belly. In many when the *mola* doth cleave not very faſt, it falleth away within three or foure moneths, being not as yet come unto its juſt bigneſſe; and many times it cleaveth to the ſides of the wombe and Cotyledons very firmely, ſo that ſome women carry it in their wombs five or ſixe yeeres, and ſome as long as they live.

A hiſtory.

The wife of *Guiliam Roger* Pewterer, dwelling in S. *Victors* ſtreet, bore a *mola* in her womb ſeventeen yeeres, who being of the age of fifty yeers, died; and I having opened her, found the body of her womb to be almoſt looſed, and not tyed or bound by its accuſtomed ligatures, but as it were hanging onely by the necke, and furthermore cleaving to the Kall adjoyning to it, having but onely one teſticle, and that on the right ſide, and that ſomewhat broader and looſer than uſuall: the hornes were not to be ſeene except it were on that ſide, the veſſells were on the necke onely, and there very manifeſt and puffed up, it was as bigge as a mans head. When I had taken it out of her body, I brought it home unto my houſe, that at my leaſure I might finde out what was conteined in it ſo long; therfore on a certaine day, calling together the chiefe Phyſitians of Paris, as *Maſſilaus*, *Alexis*, *Vigor*, *de* S. *Pont*. *Feure*, *Brovet*, *Violais*, *Grealmus*, *Ravin*, *Mareſcotius*, *Milotus*, *Hautin*, *Riolan*, *Luſſon*; and Chirurgians, as *Brun*, *Cointerell*, *Guillemean*: all theſe being preſent, I opened the wombe, and I found it in all the body thereof and in the proper tunicle, ſo ſchirrhous, and ſo hard, that I could hardly cut or make a knife to enter into it: the body thereof was three fingers thicke. In the midſt of the capacity thereof I found a lumpe of fleſh as bigge as both my fiſts, like unto a Cowes udder, cleaving to the ſides of the wombe but in certaine places, of a very thicke, unequall and cloddiſh ſubſtance, with many bodies therein, even as are commonly found in wennes and griſtles, diſperſed through it as if it were bones. The judgement of all that were preſent was, that this great tumor at the firſt was a *mola*, which in proceſs of time degenerated into a ſchirrous body, together with the proper ſubſtance of the womb. Moreover, in the middle of the neck of the womb, we found a tumor as big as a Turkies egge, of ſubſtance hard, cartilaginous and bonie, filling all the whole necke, but eſpecially the inward orifice of the womb, which the common people of *France* do call the Garland, ſo that by that paſſage nothing could goe out, or enter into the wombe: all that tumour weighed nine pounds and two ounces, which I, by reaſon of the novelty of the thing, keep in my cloſet, and here I have deſcribed it.

The deſcription of a *mola* carried ſeventeene yeeres in the wombe.

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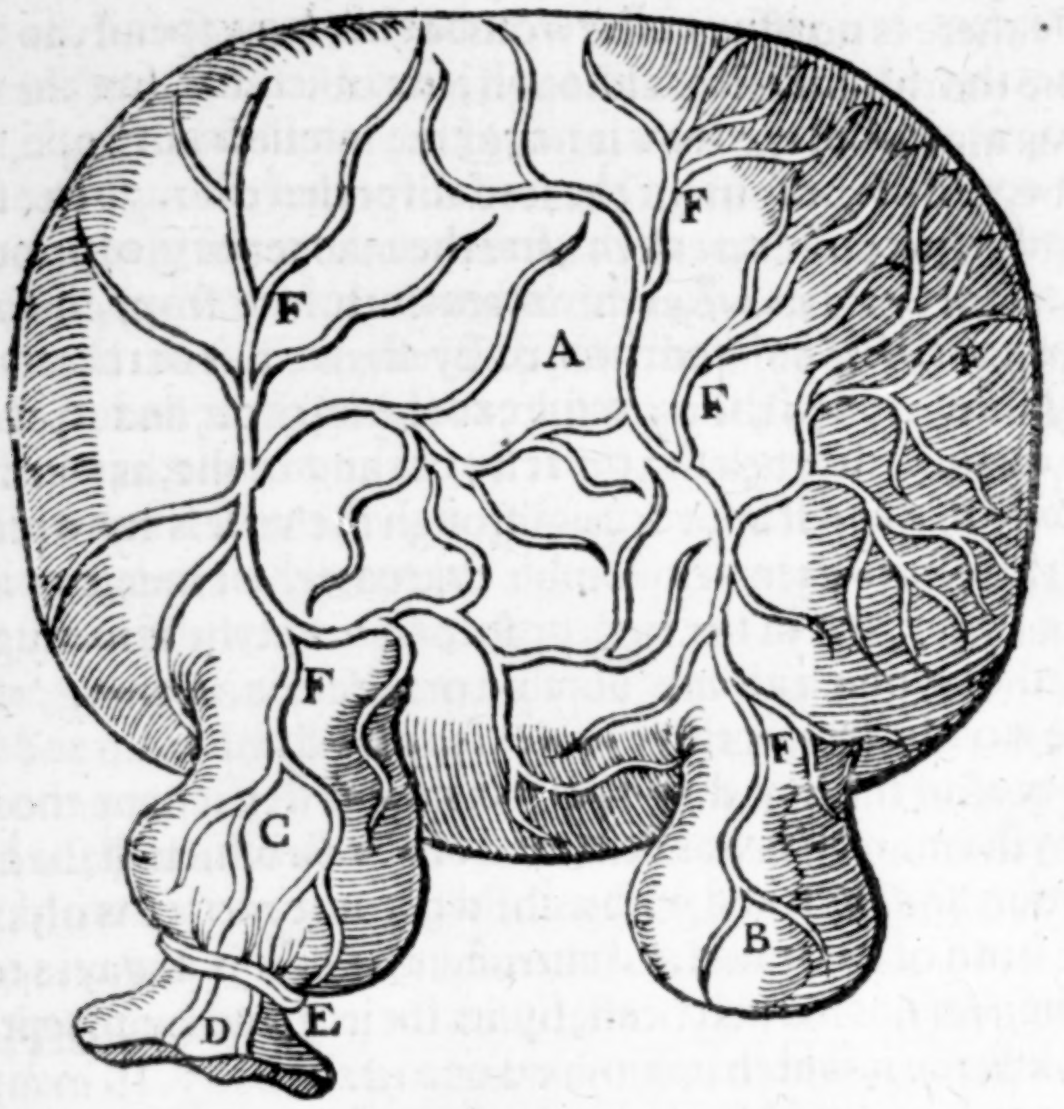
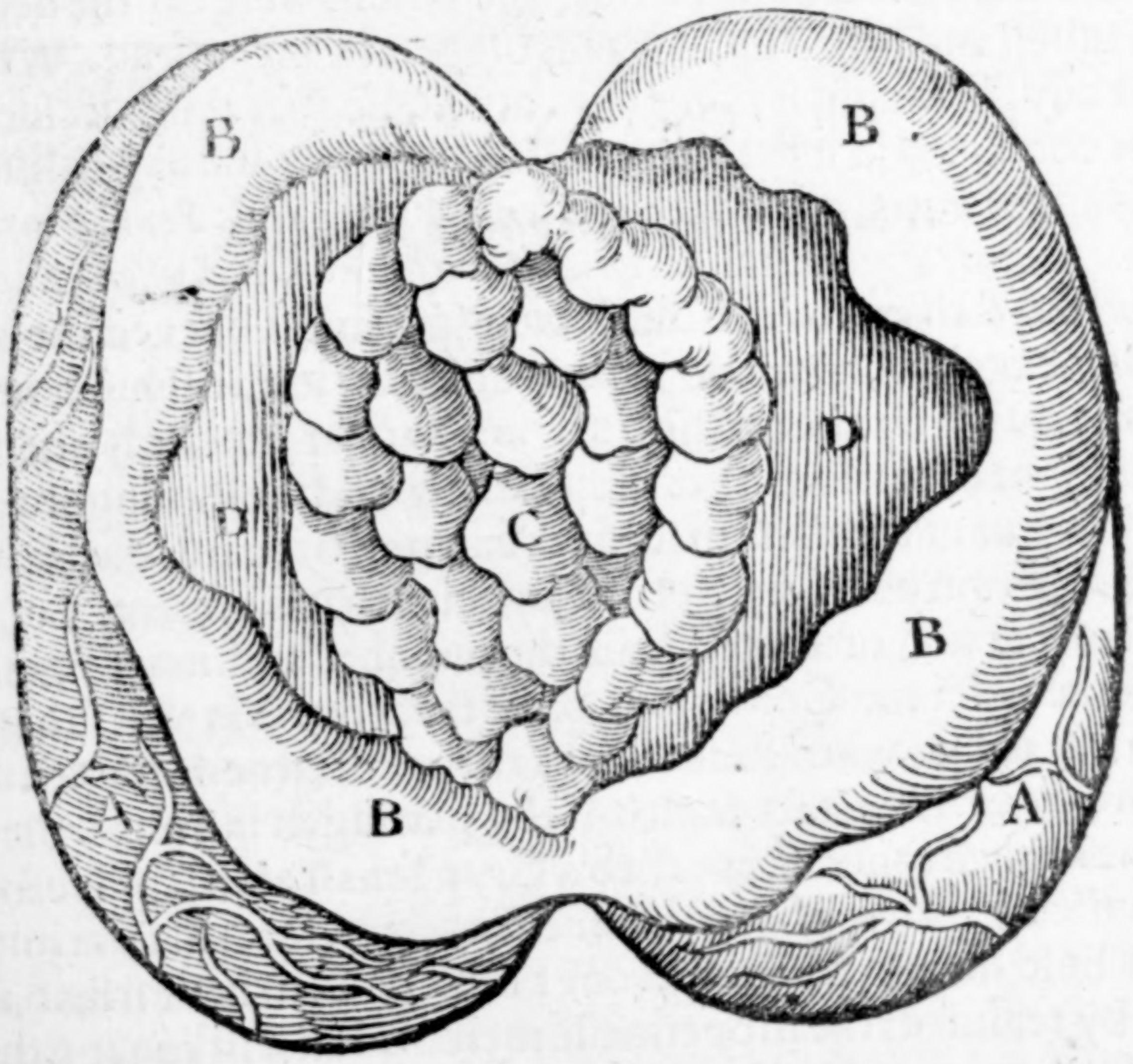
The externall forme and deſcription of the fore-named wombe.



A. *Sheweth the body of the wombe.*
B. *The teſticle.*
C. *The neck of the wombe, wherein that little tumour was contained.*
D. *Sheweth the end of the necke of the wombe that was plucked in ſunder, and alſo the veſſels whereby it drew the nutriment unto it.*
E. *Sheweth the band.*
FFF. *The veſſels diſperſed thorow the wombe.*

The deſcription of the womb being open, and ſhewing the Mola *contained therein.*



AA. *Shew the externall and ſuperficiall part of the wombe.*
BBBB. *Shew the thickneſſe of the body or proper ſubſtance of the wombe.*
C. *Sheweth the* Mola.
DD. *Shew that concavity wherein the* mola *was conteined or incloſed in the womb.*

As long as the woman carried this *Mola* in her wombe, ſhee felt moſt ſharpe pain in her belly, the region of her belly was marvellous hard, diſtended and large, as if it were a woman that had many children at once in her wombe, ſo that many Phyſicians when the time of child-birth was paſt, ſuppoſed that ſwelling of the belly to come of the dropſie, and aſſayed to cure it as they would the dropſie, but for all the medicines they could uſe, the belly became never the leſſer. Oftentimes the urine was ſtopped for the ſpace of three dayes, and then the making of urine was very painfull unto her, and many times alſo her excrements were ſtopped for the ſpace of a weeke, by reaſon that the guts were preſſed by the weight of the *Mola*. At certaine ſeaſons, as every third moneth, there came exceeding great fluxes, the matter thereof could not be carryed through the capacity of the wombe, as wee ſaid before, becauſe it was exactly ſhut and ſtopped, but through the veſſels by which virgins, and alſo certaine other women great with childe evacuate their menſtruall matter. If the *Mola* be expelled or caſt out in the firſt or ſecond moneth, as many times it ſo happeneth, it is called of women an unprofitable or falſe conception. Sometimes there are found in one wombe two or three moles ſeparated one from another, and ſometimes bound or tyed to the ſound and perfect infant. As it happened in the wife of *Valleriola* the Phyſician, which was delivered of a *Mola* which ſhe had carryed in her wombe twelve moneths, annexed with a child of foure moneths old, which had deprived the infant both of its roome and nutriment. For it is alwayes to be certainely ſuppoſed, that the *Mola*, as a cruell beaſt, by its ſociety, and keeping it from its nutriment and place, kils the infant that is joyned unto it.

A vaine or unprofitable conception.

The *mola* kils the infant in the womb when it is faſtened unto it.

I remember once I opened the body of a dead woman, which had a *Mola* in her wombe as bigge as a gooſe egge, which when nature had aſſayed by many vaine endeavours to caſt out, remained notwithſtanding, and at length putrefied, and therewith infected the whole wombe, whereof ſhe dyed. There be ſome which judging themſelves great with childe, doe about the ninth or tenth moneth expell no other thing but ſounding blaſts of winde; whereby the wombe ſuddenly falling downe and waxing more ſlender, they are ſaid in a mockery to have been delivered of a fart. To conclude, whatſoever reſembles being with child, if it be not excluded at the due and lawfull time of child-birth by its owne accord or by the ſtrength of nature, then muſt it bee expelled by art.

CHAP. XXXV.

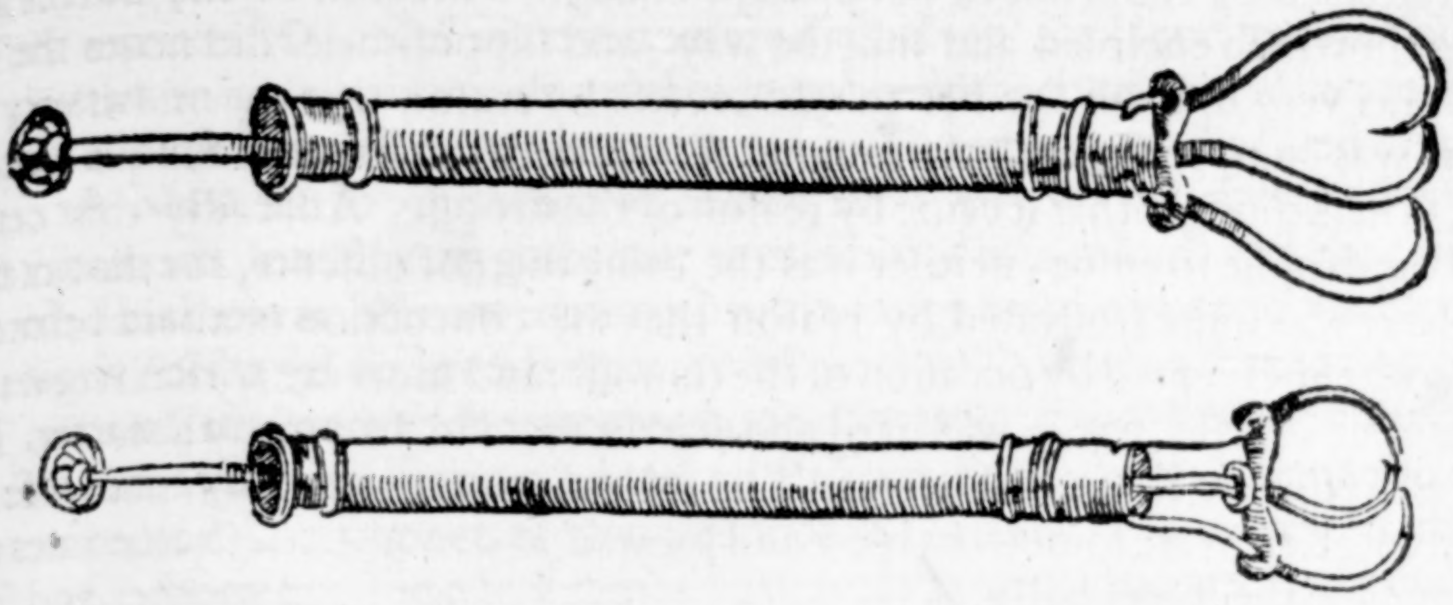
What cure muſt bee uſed to the Mola.

Thoſe things that provoke the flowers forcibly doe alſo conſume or waſt the *mola*.

ALL things that provoke the flowers and ſecundines, and exclude the infant being dead, are to be preſcribed, given inwardly, put up, and applyed outwardly, as the trochiſces of *myrrha*, hermodactils, and ſuch like, firſt having fomentations that are relaxing and mollifying alwaies applyed to the places. You muſt uſe theſe medicines and phlebotomy, diet and bathes then & ſo long as it ſhall ſeem neceſſary to the Phyſician that is preſent. But if it happens that the *mola* is ſeparated or looſed from the wombe, and nature cannot expell it when it is ſo looſed, let the Chirurgion place the woman in that ſituation that wee ſaid ſhe was to bee put in, when the child was to bee drawne from her. Then opening her genitall parts, let him take hold on it by putting an inſtrument into it, which by reaſon of the likeneſſe thereof, is called a Gryphons Talon, for it cannot be taken hold on otherwiſe, by reaſon of the roundneſſe thereof, for it hath no place whereon it may be taken hold of: therfore, when one taketh hold on it with his hand, it cannot be holden faſt by reaſon of the ſlipperineſſe thereof, but will run and ſlip backe into the hollowneſſe of the wombe, like unto a bowle or great ball; but it may bee more eaſily taken hold on with the Gryphons Talon, if the belly be preſſed on both ſides that it may remaine ſtill while the Gryphons Talon takes hold on it, for when it hath taken good hold on it, it may be eaſily drawne out. When the *mola* is drawne out, the ſame cure muſt be uſed to the woman, as is uſed to a woman after that ſhe is delivered of child.

The Chirurgicall extraction of the *mola*.

The figure of an inſtrument called a Gryphons Talon, to draw out the Mola *when it is looſe in the wombe.*



CHAP. XXXVI.

Of Tumours or ſwellings happening to the Pancreas *or ſweet-bread, and the whole Meſentery.*

THe tumours of other places and parts in the belly ought diligently to bee diſtinguiſhed from the *mola*, and other tumours of the wombe. For when tumours ariſe in the *glandula* called *Pancreas*, and in all the whole *Meſenterium*, many unſkilfull Chirurgions take them for *mola's* or ſcirrhous tumors of the wombe, and ſo goe erroneouſly about to cure them, as ſhall appeare by thoſe hiſtories following.

A hiſtory.

Iſabel Rolant the wife of *John Bony* dwelling in Paris in the ſtreet *Moncey* neere to St. *Gerviſe* his Church, being threeſcore yeares of age, departed this life in the yeare of our Lord God 1578. on the twenty ſecond day of October: and her body being opened in the preſence of Doctor *Milot* the Phyſician, hee when the Meſentery was taken out of the body, cauſed it to be carried home to his houſe, that at his leaſure he might find out the cauſe of this mortall diſeaſe, which was alwayes ſuſpected to be in the Meſentery. Therefore on a time calling *Varadeus, Brove, Chappell, Mareſcotius, Arragonius, Baillutius, Rebertius and Riolan*, all Doctors of Phyſick, and me and *Pineus* Chirurgions, to his houſe to ſee the ſame. Where wee found all the Meſentery and the *Pancreas* in the Meſentery ſwolne and puffed up with a marvellous and almoſt incredible tumour, ſo that it wayed ten pound and an halfe, altogether ſcirrhous on the out ſide, cleaving on the hinder part onely to the vertebres of the loynes: but on the fore part to the *Peritonæum*, being alſo ſcirrhous and wholly cartilaginous. Moreover, there were infinite other abſceſſes in the ſame Meſentery, every one cloſed in his ſeverall cyſt, ſome filled with a hony-like, ſome with a tallow-like, ſome with an albugineous, and ſome with a wateriſh liquor or humour, whereof ſome alſo were like unto pap, and to conclude, looke how many abſceſſes there were, ſo many kinds or differences of matters there were. It was then eight yeares ſince that tumour began to grow by little and little without feeling and paine unto ſuch a greatneſſe, becauſe that the Meſentery it ſelfe was without pain in a manner. For the woman her ſelfe could do all the faculties of nature almoſt as well as if ſhe had bin ſound and whole, except that two moneths before ſhe died, ſhe was conſtrained to keep her bed, becauſe ſhee had a continuall feaver, which endured ſo long as ſhe lived, and alſo becauſe that the Meſentery, being as it were ſeparated or torne from its roots or ſeate, did rowle up and downe in the belly, not without the feeling of grievous paine: for, as we ſaid before, it did ſtick but only to the vertebres of the loynes and *Peritonæum*, and nothing at all to the guts and other parts whereunto it is as it were naturally knit or joyned.

Apoſtumes of divers kinds in the *Meſenterium*.

The accidents that come when the *Meſenterium* is ſeparated from the bodies adjoyning.

Therefore becauſe the weight and heavineſſe thereof depreſſed the bladder, it cauſed a great difficulty in her making of water, and alſo becauſe it reſted on the guts, it made it very painefull for her to goe to ſtoole, ſo that the excrements would not come downe except ſhee tooke a ſharpe glyſter to cauſe them: and as concerning glyſters, they could not be put up high enough, by reaſon of the greatneſſe of the tumour which encloſed and ſhut the way; and ſuppoſitories did no good at all. It was alſo very difficult for her to take breath, by reaſon that the midriffe or *diaphragma* was compreſſed with the tumour. There were ſome that did ſuſpect it to be a *mola*, others thought that it came by reaſon of the dropſie. Aſſuredly this diſeaſe cauſed the dropſie to enſue; neither was the cauſe thereof obſcure, for the function of the liver was quite fruſtrated by reaſon that the concoction or alteration of the Chylus was intercepted by occaſion of the tumour: and moreover, the liver it ſelfe had a proper diſeaſe, for it was hard and ſcirrhous, and had many abſceſſes both within and without it, and all over it. The milt was ſcarce free from putrefaction, the guts and Kall were ſomewhat blew and ſpotted, and to bee briefe, there was nothing found in the lower belly.

The dropſie comming of a tumour of the *Meſenterium.*

Tom. 1. tra 1. c. 1.

There is the like hiſtory to bee read, written by *Philip Ingraſsias*, in his booke of tumours, of a certaine Moore that was hanged for theft, for (ſaith he) when his body was publikely diſſected, in the *Meſenterium* were found ſeventy ſcrophulous tumours, and ſo many abſceſſes were contained or encloſed in their ſeverall cyſts or skins, and ſticking to the externall tunicle, eſpecially of the greater guts: the matter conteyned in them was divers, for it was hard, knotty, clammy, glutinous, liquid and wateriſh, but the entrals, eſpecially the liver and the milt, were ſound and free from all manner of tainture, becauſe (as the ſame Author alledgeth) nature being ſtrong, had ſent all the evill juice, and the corruption of the entrals into the Meſentery: and verily this Moore, ſo long as he lived, was in good and perfect health. Without doubt the corruption of ſuperfluous humours for the moſt part is ſo great (as it is noted by *Fernelius*) that it cannot bee received in the receptacles that nature hath appointed for it; therefore then no ſmall portion thereof falleth downe into the parts adjoyning, and eſpecially into the Meſentery and *pancreas*, which are as it were the ſink of the whole body. In thoſe bodies which through continuall and daily gluttony abound with choler, melancholy and flegme, if it be not purged in time, nature being ſtrong and luſty, doth depell and drive it downe into the *pancreas* and the Meſentery, which are as places of no great repute, and that eſpecially out of the liver and milt by thoſe veines or branches of the *vena porta* which end or goe not into the guts, but are terminated in the Meſentery and *pancreas*. In theſe places divers humours are heaped together, which in proceſſe of time turne into a looſe and ſoft tumour, & then if they grow bigger, into a ſtiffe, hard and very ſcirrhous tumour. Whereof *Fernelius* affirmeth that in thoſe places he hath found the cauſes of choler, melancholy, fluxes, dyſenteries, cachexia's, atrophia's, conſumptions, tedious and uncertain fevers, and laſtly of many hidden diſeaſes, by the taking away whereof ſome have received their health, that have been thought paſt cure. Moreover *Ingraſsias* affirmeth out of *Julius Pollux* that Scrophulaes may be engendred in the Meſentery, which nothing differs from the mind & opinion of *Galen*, who ſaith that Scrophulaes are nothing elſe but indurate & ſcirrhous kernels. But the *Meſenterium* with his glandules being great and many, making the *Pancreas*, doth eſtabliſh, ſtrengthen and confirme the diviſions of the veſſels. Alſo the ſcirrhus of the proper ſubſtance of the wombe is to bee diſtinguiſhed from the *mola*: for in the bodies of ſome women that I have opened, I have found the wombe annoyed with a ſcirrhous tumour as big as a mans head, in the curing whereof Phyſicians nothing prevailed, becauſe they ſuppoſed it to bee a *mola* contained in the capacity of the wombe, and not a ſcirrhous tumour in the body thereof.

Lib. 6. part. morb. cap. 7.

The *Meſenterium* is the ſinke of the body.

The Scrophulaes in the *Meſenterium.*

A *ſcirrhus* of the wombe.

Chap. XXXVII.

Of the cauſe of barrenneſſe in men.

THere are many cauſes of barrenneſs in men, that is to ſay, the too hot, cold, dry or moyſt diſtemper of the ſeed, the more liquid and flexible conſiſtence thereof, ſo that it cannot ſtay in the womb, but will preſently flow out again: for ſuch is the ſeed of old men and ſtriplings, and of ſuch as uſe the act of generation too often and immoderately: for thereby the ſeed becommeth crude and wateriſh, becauſe that it doth not remaine his due and lawfull time in the teſticles, wherein it ſhould be perfectly wrought and concocted, but is evacuated by wanton copulation. Furthermore, that the ſeed may be fertile, it muſt of neceſſity be copious in quantity, but in quality well concocted, moderately thicke, clammy, and puffed up with the abundance of ſpirits; both theſe conditions are wanting in the ſeed of them that uſe copulation too often: and moreover, becauſe the wives of thoſe men never gather a juſt quantity of ſeede laudible both in quality and conſiſtence in their teſticles, whereby it commeth to paſſe that they are the leſſe provoked or delighted with venereous actions, and performe the act with leſſe alacrity, ſo that they yeeld themſelves leſſe prone to conception. Therefore let thoſe that would be parents of many children uſe a mediocrity in the uſe of venery.

How the ſeed is unfertile.

The woman may perceive that the mans ſeed hath ſome diſtemperature in it, if when ſhee hath received it into her wombe, ſhee feeleth it ſharpe, hot or cold, if the man be more quick or ſlow in the act. Many become barren after they have beene cut for the ſtone, and likewiſe when they have had a wound behind the eares, whereby certaine branches of the jugular veines and arteries have been cut, that are there, ſo that after thoſe veſſels have been cicatrized, there followed an interception of the ſeminall matter downewards, and alſo of the community which ought of neceſſity to be betweene the braine and the teſticles, ſo that when the conduits or paſſages are ſtopped, the ſtones or teſticles cannot any more receive, neither matter nor lively ſpirits from the braine in ſo great quantity as it was wont, whereof it muſt of neceſſity follow, that the ſeed muſt bee leſſer in quantity, and weaker in quality.

How the cutting of the veines behind the eares maketh men barren.

Thoſe that have their teſticles cut off, or elſe compreſſed or contuſed by violence, cannot beget children, becauſe that either they want the help that the teſticles ſhould miniſter in the act of generation, or elſe becauſe the paſſage of the ſeminall matter is intercepted or ſtopped with a Callus: by reaſon whereof they cannot yeeld forth ſeed, but a certaine clammy humour conteyned in the glandules called *proſtatæ* (yet with ſome feeling of delight).

Moreover the defects or imperfections of the yard may cauſe barrenneſſe: as, if it be too ſhort, or if it bee ſo unreaſonable great, that it renteth the privie parts of the woman, and ſo cauſeth a fluxe of bloud, for then it is ſo painefull to the woman, that ſhee cannot voyde her ſeed, for that cannot bee excluded without pleaſure and delight, alſo if the ſhortneſſe of the ligament that is under the yard doth make it to bee crooked, and violate the ſtiffe ſtraightneſſe thereof, ſo that it cannot be put directly or ſtraightly in the womans privie parts. There bee ſome that have not the orifice of the conduit of the yard rightly in the end thereof, but a little higher, ſo that they cannot ejaculate or caſt out their ſeed directly into the wombe.

The defaults of the yard.

Alſo the particular palſie of the yard is numbred among the cauſes of barrenneſſe; and you may prove whether the palſie be in the yard by dipping the genitals in cold water: for except they do draw themſelves together or ſhrinke up after it, it is a token of the palſie, for members that have the palſie, by the touching of cold water, do not ſhrinke up, but remaine in their accuſtomed laxity and looſeneſſe: but in this caſe the genitals are endued with ſmall ſenſe; the ſeed commeth out without pleaſure or ſtiffeneſſe of the yard; the ſtones in touching are cold; and to conclude, thoſe that have their bodies daily waxing leane through a conſumption, or that are vexed with an evill habit or diſpoſition, or with the obſtruction of ſome of the entrals, are barren and unfertile, and likewiſe thoſe in whom ſome noble part neceſſary to life

The ſigne of the palſie in the yard.

and generation exceedeth the bounds of nature with ſome great diſtemperature, and laſtly thoſe who by any meanes have their genitall parts deformed.

Magick bands and enchanted knots.

Here I omit thoſe that are witholden from the act of generation by inchantment, magick, witching, and enchanted knots, bands and ligatures, for thoſe cauſes belong not to phyſick, neither may they bee taken away by the remedies of our art. The Doctors of the Cannons lawes have made mention of thoſe magick bands which may have power in them, in the particular title *De frigidis, maleficiatis, impotentibus & incantatis* : alſo St. *Auguſt.* hath made mention of them, *Tract. 7. in Joan.*

Chap. XXXVIII.

Of the barrenneſſe or unfruitfulneſſe of women.

The cauſe why the neck of the wombe is narrow.

The membrane called *Hymen*.

A Woman may become barren or unfruitfull through the obſtruction of the paſſage of the ſeed, or through ſtraightneſſe or narrowneſſe of the necke of the wombe, comming either through the default of the formative facultie, or elſe afterwards by ſome miſchance, as by an abſceſſe, ſcirrhus, warts, chaps, or by an ulcer, which being cicatrized, doth make the way more narrow, ſo that the yard cannot have free paſſage thereinto: Moreover, the membrane called *Hymen*, when it groweth in the midſt or in the bottome of the neck of the wombe, hinders the receiving of the mans ſeede. Alſo if the womb be over ſlippery, or more looſe, or ſlack, or over wide, it maketh the woman to bee barren, ſo doth the ſuppreſſion of the menſtruall fluxes, or the too immoderate flowing of the courſes or whites : which commeth by the default of the wombe or ſome entrall, or of the whole body, which conſumeth the menſtruall matter, and carrieth the ſeed away with it.

The cauſe of the fluxe of women.

The cold and moyſt diſtemperature of the wombe, extinguiſhes and ſuffocates the mans ſeed, and maketh it that it will not ſtay or cleave unto the wombe, and ſtay till it be concocted : but the more hot and dry doth corrupt for want of nouriſhment, for the ſeeds that are ſowne either in a mariſh or ſandy ground cannot proſper well : alſo a *mola* contained in the wombe, the falling down of the wombe, the leanneſſe of the womans body, ill humours bred by eating crude and raw fruits, or great or overmuch drinking of water, whereof obſtructions and crudities follow, which hinder her fruitfulneſſe. Furthermore, by the uſe of ſtupefactive things, the ſeminall matter is congealed and reſtrained, and though it flow and be caſt out, yet it is deprived of the prolificke power, and of the lively heat and ſpirits, the orifices or cotylidones of the veines and arteries are ſtopped, and ſo the paſſage for the menſtruall matter into the wombe, is ſtopped. When the Kall is ſo fat that it girdeth in the wombe narrowly, it hindereth the fruitfulneſſe of the woman, becauſe it will not permit the mans ſeed to enter into the wombe. Moreover the fat and fleſhy habit of the man or woman hinder generation. For it hindreth them that they cannot joyne their genitall parts together : and by how much the more bloud goeth into fat, by ſo much the leſſe is remaining to be turned into ſeed & menſtruall bloud, which two are the originals & principals of generation. Thoſe women that are ſpeckled in the face, ſome what lean, & pale, becauſe they have their genitals moyſtned with a ſaltiſh, ſharp and tickling humour, are more given to venery than thoſe that are red & fat. Finally, *Hippocrates* ſets downe foure cauſes onely why women are barren and unfruitfull. The firſt is, becauſe they cannot receive the mans ſeede, by reaſon of the default of the neck of the wombe ; the ſecond, becauſe when it is received into the wombe, they cannot conceive it ; the third is, becauſe they cannot nouriſh it ; the fourth, becauſe they are not able to carry or beare it untill the due and lawfull time of birth. Theſe things are neceſſary to generation, the object, wil, faculty, concourſe of the ſeeds, and the remaining or abiding thereof in the wombe, untill the due and appointed naturall time.

Aph. 38. ſect. 5. Gal. lib. 14. de uſu par. cap. 9. Ariſt. in prob. ſect. de ſter. quæ. 3. & 4.

Chap. XXXIX.

The ſignes of a diſtempered wombe.

THat woman is thought to have her wombe too hot, whoſe courſes come forth ſparingly and with paine, and exulcerate by reaſon of their heate, the ſuperfluous matter of the bloud being diſſolved or turned into wind by the power of the heat: whereupon that menſtruall bloud that floweth forth is more groſſe and black. For it is the property of heat, by digeſting the thinner ſubſtance, to thicken the reſt, and by aduſtion to make it more black. Furthermore, ſhee that hath her genitals itching with the deſire of copulation, will ſoone exclude the ſeede in copulation, and ſhee ſhall feele it more ſharpe as it goeth through the paſſages. That woman hath too cold a wombe whoſe flowers are either ſtopped, or flow ſparingly, and thoſe pale and not well coloured.

The ſignes of a hot wombe.

The ſignes of a cold wombe.

Thoſe that have leſſe deſire of copulation, have leſſe delight therein, and their ſeed is more liquid and wateriſh, and not ſtayning a linnen cloth by ſticking thereunto, and it is ſparingly and ſlowly caſt forth. That wombe is too moiſt that floweth continually with many liquid excrements, which therefore will not hold the ſeed, but preſently after copulation ſuffereth it to fall out, which will eaſily cauſe abortion. The ſignes of too dry a wombe appeare in the little quantity of the courſes, in the profuſion of a ſmall quantity of ſeed, by the deſire of copulation, whereby it may be made ſlippery by the moyſture of the ſeede, by the fiſſures in the necke thereof, by the chaps and itching, for all things for want of moyſture will ſoone chap, even like unto the ground, which in the ſummer by reaſon of a great drought or dryneſſe, will chap and chinke this way and that way, and on the contrary, with moiſture it will cloſe and joyne together againe as it were with glew.

The ſignes of a moyſt wombe.

The ſignes of a dry wombe.

A woman is thought to have all opportunities unto conception when her courſes or flowers doe ceaſe, for then the wombe is voyd of excrementall filth, and becauſe it is yet open, it will the more eaſily receive the mans ſeede, and when it hath received it, it will better retaine it in the wrinkles of the cotylidones yet gaping as it were in rough and unequall places. Yet a woman will eaſily conceave a little before the time that the flowers ought to flow: becauſe that the menſtruall matter falling at firſt like dew into the wombe, is very meet and fit to nouriſh the ſeede, and not to drive it out againe, or to ſuffocate it.

A meet time for conception.

Thoſe which uſe copulation when their courſes fall downe abundantly, will very hardly or ſeldome conceive, and if they doe conceive, the child will be weake and diſeaſed, and eſpecially if the womans bloud that flowes out be unſound; but if the bloud bee good and laudable, the childe will bee ſubject to all plethoricke diſeaſes. There are ſome women in whom preſently after the fluxe of the termes, the orifice of the wombe will be cloſed, ſo that they muſt of neceſſity uſe copulation with a man when their menſtruall fluxe floweth, if at leſt they would conceive at all. A woman may beare children from the age of fourteene untill forty or fifty: which time whoſoever doth exceed, will beare untill threeſcore yeares, becauſe the menſtruall fluxes are kept, the prolificall faculty is alſo preſerved: therefore many women have brought forth children at that age, but after that time no woman can beare, as *Ariſtotle* writeth.

Ariſt. l. 7. de hiſt. anim. c. 2. & c. 5.

Yet *Pliny* ſaith that *Cornelia* (who was of the houſe of the *Scipioes*) being in the ſixty ſecond yeare of her age, bare *Voluſius Saturnius*, who was Conſull; *Valeſcus de Tarenta* alſo affirmeth, that he ſaw a woman that bare a childe on the ſixty ſecond yeare of her age, having borne before on the ſixtieth and ſixty firſt yeare. Therefore it is to bee ſuppoſed that by reaſon of the variety of the ayre, region, diet and temperament, the menſtruall fluxe and procreative faculty ceaſeth in ſome ſooner, in ſome later; which variety taketh place alſo in men. For in them although the ſeede be genitable for the moſt part in the ſecond ſeventh yeare, yet truely it is unfruitfull untill the third ſeventh yeare. And whereas moſt men beget children untill they bee

Lib. 7. cap. 14.

Lib. 6. cap. 12.

Lib. 7. de hiſt. animal. c. 1. & c. 6.

threeſcore yeers old, which time if they paſſe, they beget till ſeventy : yet there are ſome knowne that have begot children untill the eightieth yeere. Moreover, *Pliny* writeth that *Maſiniſſa* the King begot a ſonne when hee was foureſcore and ſixe yeeres of age, and alſo *Cato* the Cenſor after that he was foureſcore.

Lib. 7. cap. 14.

CHAP. XL.

Of the falling downe, or perverſion, or turning of the wombe.

What is the falling downe of the wombe.

THe wombe is ſaid to fall downe and be perverted, when it is moved out of its proper and naturall place; as when the bands and ligatures thereof being looſed and relaxed, it falleth downe unto one ſide or other, or into its owne necke, or elſe paſſeth further, ſo that it comes out at the necke, and a great portion thereof appeares without the privie parts. Therefore what things ſoever reſolve, relaxe, or burſt the ligaments or bands whereby the wombe is tyed, are ſuppoſed to be the cauſes of this accident. It ſometimes happens by vehement labour or travell in childe-birth, when the wombe with violence excluding the iſſue and the ſecundines, alſo followes and falls downe, turning the inner ſide thereof outward. And ſometimes the fooliſh raſhneſſe of the midwife, when ſhee draweth away the wombe with the infant, or with the ſecundine cleaving faſt thereunto, and ſo drawing it downe and turning the inner ſide outward. Furthermore, a heavie bearing of the womb, the bearing or the carriage of a great burthen, holding or ſtretching of the hands or body upwards in the time of greatneſſe with childe, a fall, contuſion, ſhaking, or jogling by riding, either in a waggon or a coach, or on horſe backe, or by leaping or dancing, the falling downe of a more large and abundant humor, great griping, a ſtrong and continuall cough, a *Teneſmus*, or often deſire to go to ſtoole, yet not voiding any thing, neeſing, a manifold and great birth, difficult bearing of the wombe, an aſtmaticall and orthopnoicall difficulty of breathing, whatſoever doth waightily preſſe downe the *Diaphragma* or Midriffe, or the muſcles of the *Epigaſtrium*, the taking of cold aire in the time of travell with childe, or in the flowing of the menſtruall fluxe, ſitting on a cold marble ſtone, or any other ſuch like cold thing, are thought often times to bee the occaſion of theſe accidents, becauſe they may bring the wombe out of its place.

The cauſes.

Ariſt. lib. 7. de hiſtor. anim. cap. 2.

It falls downe in many (ſaith *Ariſtotle*) by reaſon of the deſire of copulation that they have, either by reaſon of the luſtineſſe of their youth, or elſe becauſe they have abſtained a long time from it.

The ſignes.

You may know that the wombe is fallen downe by the pain of thoſe parts wherehence it is fallen, that is to ſay by the entrals, loynes, *os ſacrum*, and by a tractable tumour at the necke of the wombe, and often with a viſible hanging out, of a diverſe greatneſſe, according to the quantity that is fallen downe. It is ſeene ſometimes like unto a piece of red fleſh, hanging out at the necke of the wombe, of the bigneſſe and forme of a Gooſe egge; if the woman ſtand upright, ſhee feeleth the weight to ly on her privie parts, but if ſhe ſit or ly, then ſhe perceiveth it on her back, or goe to the ſtoole, the ſtraight gut called *inteſtinum rectum* will bee preſſed or loaden as it were with a burthen, if ſhee lye on her belly, then her urine will bee ſtopped, ſo that ſhee ſhall feare to uſe copulation with a man.

The prognoſtications.

When the wombe is newly relaxed in a young woman, it may bee ſoone cured, but if it hath beene long downe in an old woman, it is not to bee helped. If the palſie of the ligaments thereof have occaſioned the falling, it ſcarce admits of cure, but if it fall downe by meanes of putrefaction, it cannot poſſibly be cured. If a great quantity thereof hang out betweene the thighes, it can hardly be cured; but it is corrupted by taking the ayre, and by the falling downe of the urine and filth, and by the motions of the thighs in going it is ulcerated, and ſo putrefies.

A hiſtory.

I remember that once I cured a young woman who had her wombe hanging out at her privie parts as big as an egge, and I did ſo well performe and perfect the cure thereof, that afterwards ſhe conceived, and bare children many times, and her womb never fell downe.

CHAP. XLI.

The cure of the falling downe of the Wombe.

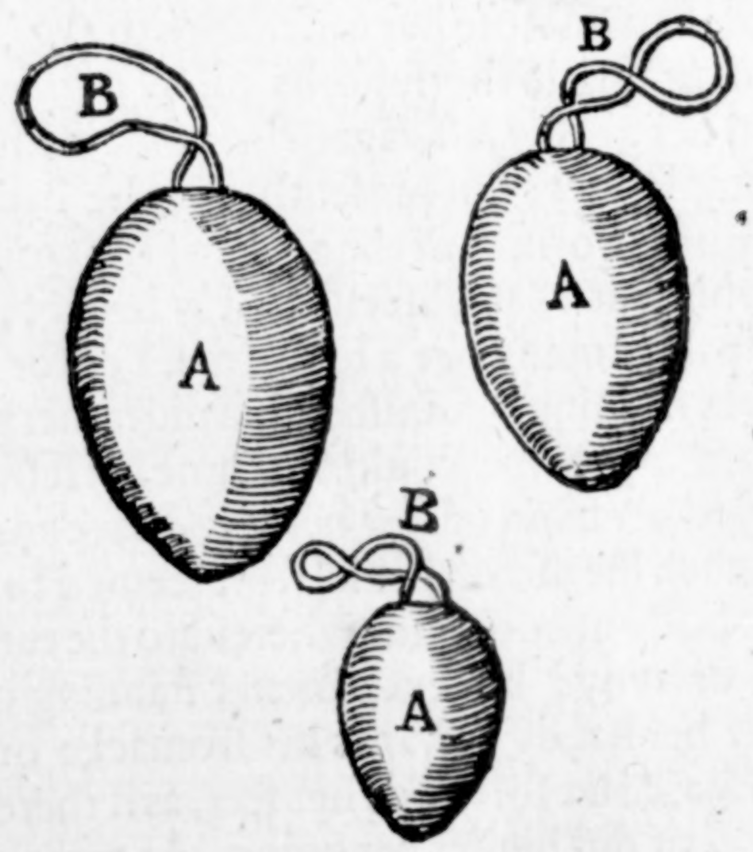
Remedies for the aſcenſion of the wombe.

BY this word, falling downe of the wombe, we underſtand every motion of the womb out of its place or ſeat: therefore if the wombe aſcend upwards, wee muſt uſe the ſame medicines as in the ſtrangulation of the wombe. If it bee turned towards either ſide, it muſt bee reſtored and drawne backe to its right place, by applying and uſing cupping glaſſes. But if it deſcend and fall downe into its owne neck, but yet not in great quantity, the woman muſt be placed ſo that her buttockes may be very high, and her legs acroſſe; then cupping glaſſes muſt bee applied to her navell and *Hypogaſtrium*, and when the wombe is ſo brought into its place, injections that binde and dry ſtrongly muſt bee injected into the necke of the wombe, ſtinking fumigations muſt bee uſed unto the privie parts, and ſweet things uſed to the mouth and noſe. But if the wombe hang downe in great quantity betweene the thighes, it muſt be cured by placing the woman after another ſort, and by uſing other kinde of medicines. Firſt of all ſhee muſt bee ſo layed on her backe, her buttockes and thighes ſo lifted up, and her legges ſo drawne backe as when the childe or ſecundine are to bee taken or drawne from her; then the necke of the wombe, and whatſoever hangeth out thereat, muſt be anointed with oile of lillies, freſh butter, capons greaſe, and ſuch like, then it muſt be thruſt gently with the fingers up into its place, the ſick or pained woman in the mean time helping or furthering the endeavour by drawing in of her breath as if ſhe did ſuppe, drawing up as it were that which is fallen downe.

For the falling downe of the wombe, properly ſo called.

After that the wombe is reſtored unto its place, whatſoever is filled with the ointment muſt be wiped with a ſoft and cleane cloth, leſt that by the ſlipperineſſe thereof the wombe ſhould fall downe againe; the genitalls muſt bee fomented with an aſtringent decoction, made with pomegranate pills, cypreſſe nuts, galles, roach allome, horſe-taile, ſumach, berberies, boiled in the water wherein Smithes quench their irons; of theſe materialls make a powder, wherewith let thoſe places be ſprinkled: let a peſſary of a competent bigneſſe be put in at the necke of the wombe, but let it bee eight or nine fingers in length, according to the proportion of the grieved patients body. Let them bee made either with latin, or of corke covered with waxe, of an ovall forme, having a thred at one end, whereby they may bee drawne backe againe as need requires.

The formes of ovall peſſaries.



A. *ſheweth the body of the Peſſary.*
B. *ſheweth the thread wherewith it muſt be tyed to the thigh.*

When all this is done, let the ſicke woman keep her ſelfe quiet in her bed, with her buttocks lying very high, and her legs acroſſe, for the ſpace of eight or ten daies: in the meane while the application of cupping glaſſes will ſtay the wombe in the right place and ſeat after it is reſtored thereunto: but if ſhee hath taken any hurt by cold aire, let the privie parts be fomented with a diſcuſſing and heating fomentation, on this wiſe. ℞. *fol. alth. ſalv. lavend. roriſmar. artemiſ. flor. chamæm. melilot. an.* m ß. *ſem. aniſ. fænugr. an.* ʒ i. let them bee all well boyled in water and wine, and make thereof a decoction for your uſe. Give her alſo glyſters, that when the guts are emptied of the excrements, the womb may the better be received into the voyd and empty capacity of the belly: for this reaſon the bladder is alſo to be emptied, for otherwiſe it were dangerous leſt that the wombe lying betweene them both being full, ſhould be kept down and cannot be put up into its owne proper place by reaſon therof. Alſo vomiting is ſuppoſed to be a ſingular remedy to draw up the womb that is fallen down: furthermore alſo it purgeth out the phlegme which did moiſten and relaxe the ligaments of the wombe; for as the wombe in the time of copulation at the beginning of the conception is moved downewards to meet the ſeed, ſo the ſtomacke, even of its owne accord, is lifted upwards when it is provoked by the injury of any thing that is contrary unto it, to caſt it out with greater violence; but when it is ſo raiſed up, it drawes up together therewith the *peritonæum*, the wombe, and alſo the bodie or parts annexed unto it. If it cannot bee cured or reſtored unto its place by theſe preſcribed remedies, and that it be ulcerated and ſo putrefyed that it cannot be reſtored unto his place againe, we are commanded by the precepts of art to cut it away, and then to cure the womb according to art, but firſt it ſhould be tyed, and as much as is neceſſary muſt bee cut off, and the reſt ſeared with a cautery. There are ſome women that have had almoſt all their wombe cut off, without any danger of their life, as *Paulus* teſtifieth.

A diſcuſſing & heating fomentation.

How vomiting is profitable to the falling down of the wombe.

The cutting away of the womb when it is putrefyed.

Lib. 6.

John Langius Phyſitian to the Count *Palatine*, writeth that *Carpus* the Chirurgian tooke out the wombe of a woman of *Bononia*, he being preſent, and yet the woman lived and was very well after it. *Antonius Benivenius* Phyſitian of *Florence*, writeth that hee was called by *Ugolius* the Phyſitian to the cure of a woman whoſe wombe was corrupted and fell away from her by peeces, and yet ſhee lived ten yeeres after it.

Epiſt. 39. lib. 2. Epiſt. med.

Tract. de mirand. morbor. cauſ.

A hiſtory.

There was a certaine woman, being ſound of body, of good repute, and about the age of thirty yeers, in whom ſhortly after ſhe had been married the ſecond time, which was in *Anno* 1571. having no childe by her firſt husband, the lawfull ſignes of a right conception did appear: yet in proceſſe of time there aroſe about the lower part of her privities the ſenſe or feeling of a waight or heavineſſe, being ſo troubleſome unto her by reaſon that it was painefull, and alſo for that it ſtopped her urine, that ſhe was conſtrained to diſcloſe her miſchance to *Chriſtopher Mombey* a Chirurgian her neighbour dwelling in the ſuburbs of S. *Germans*; who having ſeen the tumour, or ſwelling in her groine, aſſwaged the paine with mollifying and anodine fomentations and cataplaſmes; but preſently after he had done this, hee found on the inner ſide of the lip of the orifice of the necke of the wombe, an apoſtume rotten & running as if it had bin out of an abſceſſe newly broken, with ſanious matter, ſomewhat red, yellow, & pale, running out a long time. Yet for all this the feeling of the heavineſs or waight was nothing diminiſhed, but did rather encreaſe daily, ſo that from the yeere of our Lord 1573. ſhe could not turne herſelfe being in bed on this or that ſide, unleſſe ſhe layed her hand on her belly to beare and eaſe her ſelfe of the waight, and alſo ſhe ſaid when ſhe turned her ſelf, ſhe ſeemed to feele a thing like unto a bowle to rowle in her body unto the ſide whereunto ſhe turned her ſelfe, neither could ſhee goe to ſtoole, or avoyd her excrements ſtanding or ſitting, unleſſe ſhee lifted up that waight with her hands towards her ſtomacke or midriffe: when ſhee was about to go ſhe could ſcarce ſet forwards her feet, as if there had ſomething hanged between her thighes, that did hinder her going. At certaine ſeaſons that rotten apoſtume would open, or uncloſe of it ſelfe, and flow or run with its wonted ſanious matter, but then ſhe was grievouſly vexed with paine of the head, and all her members, ſwouning, loathing, vomiting, and almoſt choking, ſo that by the perſwaſion

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Carpus the Chirurgian
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on of a fooliſh woman ſhe was induced and contented to take *Antimonium*; the working and ſtrength thereof was ſo great and violent, that after many vomits, with many frettings of the guts and watry dejections or ſtooles, ſhe thought her fundament fell downe; but being certified by a woman that was a familiar friend of hers, unto whom ſhe ſhewed her ſelfe, that there was nothing fallen downe at or from her fundament, but it was from her wombe, ſhee called, in the yeere of our Lord 1575. Chirurgians, as my ſelfe, *James Guillemeau*, and *Antony Vieux*, that we might helpe her in this extremity.

Antimonium taken in a potion doth cauſe the wombe to fall downe.

When we had diligently and with good conſideration weighed the whole eſtate of her diſeaſe, wee agreed with one conſent, that that which was fallen down ſhould bee cut away, becauſe that by the blacke colour, ſtinking, and other ſuch ſignes it gave a manifeſt teſtimony of a putrefyed and corrupted thing. Therefore for two daies wee drew out the body by little and little, and piece-meale, which ſeemed unto the Phyſicians that wee had called, as *Alexius*, *Gaudinus*, *Feureus*, and *Violaneus*, and alſo to our ſelves, to be the body of the wombe, which thing we proved to bee ſo, becauſe one of the teſticles came out whole, and alſo a thicke membrane or skin, being the relick of the *mola*, which being ſuppurated, and the abſceſſe broken, came out by little and little in matter; after that all this body was ſo drawne away, the ſicke woman began to waxe better and better, yet notwithſtanding for the ſpace of nine dayes before it was taken away, ſhe voided nothing by ſiege, and her urine alſo was ſtopped for the ſpace of foure daies.

The ſignes of the ſubſtance of the wombe drawne out.

After this all things became as they were before, and ſhee lived in good health three moneths after, and then died of a Pleuriſie that came on her very ſuddenly, and I having opened her body, obſerving and marking every thing very diligently, could not finde the wombe at all, but inſtead thereof there was a certaine hard and callous body, which nature, who is never idle, had framed in ſtead thereof to ſupply the want thereof, or to fill the hollowneſſe of the belly.

Chap. XLII.

Of the tunicle or membrane called Hymen.

IN ſome virgins or maidens in the orifice of the neck of the womb there is found a certaine tunicle or membrane called of antient writers *Hymen*, which prohibiteth the copulation of a man, and cauſeth a woman to be barren; this tunicle is ſuppoſed by many, and they not of the common ſort onely, but alſo learned Phyſitians, to be, as it were, the encloſure of the virginity or maidenhead. But I could never finde it in any, ſeeking of all ages from three to twelve, of all that I had under my hands in the Hoſpitall of *Paris*.

Whether there be a membrane called *Hymen*.

Yet once I ſaw it in a virgin of ſeaventeene yeeres, whom her mother had contracted to a man, and ſhe knew neverthleſſe there was ſomething in her privie parts that hindered her from bearing of children, who deſired me to ſee her; and I found a certaine very thin nervous membrane a little beneath the *nymphæ*, neere unto the orifice of the neck of the wombe; in the midſt there was a very little hole whereout the termes might flow: I ſeeing the thickeneſſe thereof, cut it in ſunder with my ſizzers, and told her mother what ſhe ſhould doe afterwards: and truely ſhee married ſhortly after and bore children. *Realdus Columbus* is of my opinion, and ſaith that this is ſeene very ſeldome, for theſe are his words: under the *nymphæ* in many, but not in all virgins, there is another membrane, which when it is preſent (which is but ſeldome) it ſtoppeth, ſo that the yard cannot be put into the orifice of the wombe; for it is very thicke above towards the bladder, it hath an hole by which the courſes flow out. And hee alſo addeth that he obſerved it in two young virgins, and in one elder maide.

A hiſtory.

Lib. 11. cap. 16.

Avicen writeth that in virgins in the necke of the wombe there are tunicles compoſed of veines and ligaments very little, riſing from each part of the necke thereof, which

Lib. 3. ſen 21. tract. 1. cap. 1.

which at the firſt time of copulation are wont to bee broken, and the blood to runne out. *Almanſor* writeth that in virgins, the paſſage or necke of the wombe is very wrinkled, or narrow and ſtraight, and thoſe wrinkles to be woaven or ſtayed together with many little veines aad arteries, which are broken at the firſt time of copulation.

The trifles of midwives about the membrane called *Hymea*.

Theſe are the judgements of Phyſitians of this membrane: Midwives will certainly affirme that they know a virgin from one that is defloured, by the breach or ſoundneſſe of that membrane. But by their report too credulous Judges are ſoone brought to commit an errour. For that Midwives can ſpeake nothing certainely of this membrane, may bee proved by this, becauſe that one ſaith that the ſituation thereof is in the very entrance of the privie parts, others ſay it is in the midſt of the necke of the wombe, and others ſay it is within at the inner orifice thereof, and ſome are of an opinion that they ſay or ſuppoſe that it cannot be ſeen or perceived before the firſt birth. But truly of a thing ſo rare, and which is contrary to nature, there cannot be any thing ſpoken for certainty. Therefore the blood that commeth out at the firſt time of copulation, comes not alwaies by the breaking of that membrane, but by the breaking and violating or renting of the little veines which are woaven and beſpread all over the ſuperficial & inward parts of the womb and neck thereof, deſcending into the wrinkles, which in thoſe that have not yet uſed the act of generation, are cloſed as if they were glewed together: although that thoſe maides that are at their due time of marriage, feele no pain nor no flux of blood, eſpecially if the mans yard be anſwerable to the neck of the womb; whereby it appeares evidently how greatly the inhabitants of *Fez*, the metropolitane city of *Mauritania*, are deceived: for *Leo* the Affrican writeth that it is the cuſtome among them, that ſo ſoon as the married man and his ſpouſe are returned home to their houſe from the church where they have been married, they preſently ſhut themſelves into a chamber, and make faſt the dore, while the marriage dinner is preparing: in the mean while ſome old or grave matron ſtandeth waiting before the chamber dore, to receive a bloody linnen cloth the new married husband is to deliver her there, which when ſhe hath received, ſhe brings it into the midſt of all the company of gueſts, as a freſh ſpoile and teſtimony of the married wives virginity, and then for joy thereof they all fall to banqueting ſolemnely. But if through evill fortune it happeneth that in this time of copulation the ſpouſe bleedeth not in the privie parts, ſhee is reſtored againe unto her parents, which is a very great reproach unto them, and all the gueſts depart home ſad, heavie, and without dinner.

What virgins at the firſt time of copulation doe not bleed at their privie parts. *Lib.* 3.

The filthy deceit of bauds & harlots.

Moreover, there are ſome, that having learned the moſt filthy and infamous arts of bawdry, proſtitute common harlots to make gaine thereof, making men that are naughtily given to beleeve that they are pure virgins, making them to thinke that the act of generation is very painefull and grievous unto them, as if they had never uſed it before, although they are very expert therein indeed; for they doe cauſe the necke of the wombe to be ſo wrinkled and ſhrunke together, ſo that the ſides thereof ſhall even almoſt cloſe or meet together; then they put thereinto the bladders of fiſhes, or galles of beaſts filled full of blood, and ſo deceive the ignorant and young lecher, by the fraud and deceit of their evill arts, and in the time of copulation they mixe ſighes with groanes, and womanlike cryings, and the crocodiles teares, that they may ſeeme to be virgins, and never to have dealt with man before.

CHAP. XLIII.

A memorable hiſtory of the membrane called Hymen.

Lib. de preſt. dæmon. cap. 38.

JOhn *Wierus* writeth that there was a maid at Camburge, who in the middeſt of the necke of the wombe, had a thicke and ſtrong membrane growing overthwart, ſo that when the monethly termes ſhould come out, it would not permit them, ſo that thereby the menſtruall matter was ſtopped and flowed back againe, which cauſed a great tumour and diſtenſion in the belly, with great torment, as if ſhe had beene in travell with child:

the mydwives being called, and having ſeene and conſidered all that had beene done, and did appeare, did all with one voyce affirme, that ſhee ſuſtained the paines of childe-birth, although that the maide her ſelfe denyed that ſhee ever dealt with man. Therefore then this foreſaid Author was called, who, when the mydwives were void of help and counſell, might helpe this wretched maid, having already had her urine ſtopped now three whole weeks, and perplexed with great watchings, loſſe of appetite, and loathing: and when hee had ſeene the grieved place, and marked the orifice of the neck of the wombe, he ſaw it ſtopped with a thick membrane; he knew alſo that that ſudden breaking out of bloud into the wombe and the veſſels thereof, and the paſſage for thoſe matters that was ſtopped, was the cauſe of her grievous and tormenting paine. And therefore hee called a Chirurgian preſently, and willed him to divide the membrane that was in the midſt, that did ſtop the fluxe of the bloud, which being done, there came forth as much black congealed and putrefied bloud as wayed ſome eight pounds. In three dayes after ſhee was well and void of all diſeaſe and paine. I have thought it good to ſet downe this example here, becauſe it is worthy to be noted, and profitable to be imitated, as the like occaſion ſhall happen.

Chap. XLIIII.

Of the ſtrangulation of the wombe.

What is the ſtrangulation of the wombe.

THe ſtrangulation of the wombe, or that commeth from the wombe, is an interception or ſtopping of the liberty in breathing or taking wind, becauſe that the wombe, ſwolne or puffed up by reaſon of the acceſſe of groſſe vapours and humours that are contained therein, and alſo ſnatched as it were by a convulſive motion, by reaſon that the veſſels and ligaments diſtended with fulneſſe, are ſo carried upwards againſt the midriffe and parts of the breaſt, that it maketh the breath to bee ſhort, and often as if a thing lay upon the breaſt and preſſed it.

Why the womb ſwelleth.

Moreover, the wombe ſwelleth, becauſe there is contained or incloſed in it a certaine ſubſtance, cauſed by the defluxion either of the ſeed or flowers, or of the womb or whites, or of ſome other humour, tumour, abſceſſe, rotten apoſtume, or ſome ill juice, putrefying, or getting or engendering an ill quality, and reſolved into groſſe vapours. Theſe, as they affect ſundry or divers places, inferre divers and ſundry accidents, as rumbling and noyſe in the belly, if it be in the guts, deſire to vomit, after (with ſeldome vomiting) commeth wearineſſe and loathing of meat, if it trouble the ſtomack. Choaking with ſtrangulation, if it aſſaile the breaſt and throate; ſwowning, if it vex the heart; madneſſe, or elſe that which is contrary thereto, ſound ſleep or drouſineſſe, if it grieve the brain: all which oftentimes prove as maligne as the biting of a mad dogge, or equall the ſtinging or bitings of venemous beaſts.

The accidents that come of the ſtrangling of the wombe.

Why the ſtrangulation that commeth of the corruption of the ſeed is more dangerous than that that comes of the corruption of the bloud.

It hath been obſerved, that more grievous ſymptomes have proceeded from the corruption of the ſeede, than of the menſtruall bloud. For by how much every thing is more perfect and noble, while it is conteyned within the bounds of the integrity of its owne nature, by ſo much it is the more grievous and perillous, when by corruption it hath once tranſgreſſed the lawes thereof. But this kind of accident doth very ſeldome grieve thoſe women which have their menſtruall fluxe well and orderly, and doe uſe copulation familiarly; but very often thoſe women that have not their menſtruall fluxe as they ſhould, and do want, and are deſtitute of husbands, eſpecially if they be great eaters, and lead a ſolitary life. When the veſſels and ligaments of the wombe are ſwollen and diſtended as wee ſaid before, ſo much as is added to their latitude or breadth, ſo much is wanting in their length: and therefore it hapneth that the wombe, being removed out of its ſeate, doth one while fall to the right ſide towards the liver, ſometimes to the left ſide towards the milt, ſometimes upwards unto the midriffe and ſtomacke, ſometimes downewards, and ſo forwards unto the bladder, whereof commeth an Iſchury and ſtrangury; or backwards, whereof

The cauſe of the divers turning of the wombe into divers parts of the body.

of commeth oppreſſion of the ſtraight gut, and ſuppreſſion of the excrements, and the *Teneſmus.*

But although wee acknowledge the wombe to decline to thoſe parts which wee named, yet it is not by accident onely, as when it is drawne by the proper and common ligaments and bands, when they are contracted or made ſhorter, being diſtended with fulneſſe, but alſo of its ſelfe, as when it is forced or provoked through the griefe of ſomething contrary to nature that is contained therein: it wandreth ſometimes unto one ſide, and ſometimes unto another part with a plaine and evident naturall motion, like unto the ſtomack which imbraceth any thing that is gentle and milde, but avoydeth any thing that is offenſive and hurtfull; yet we deny that ſo great accidents may bee ſtirred up by the falling of it alone unto this or that ſide, for then it might happen, that women that are great with childe, whoſe wombes are ſo diſtended by reaſon that the childe is great, that it doth preſſe the midriffe, might be troubled with a ſtrangulation like unto this; but much rather by a venemous humour breathing out a maligne and groſſe vapour, not onely by the veines and arteries, but alſo by the pores that are inviſible, which pollutes the faculties of the parts which it toucheth with its venemous malignity & infection, and intercepts the functions thereof. Neither doth the variety of the parts receiving only, but alſo of the matter received, cauſe variety of accidents.

The wombe is not ſo greatly moved by an accident, but by it ſelfe.

Whereof come ſuch divers accidents of ſtrangulation of the wombe.

The cauſe of ſleepineſs in the ſtrangulation of the wombe.

For, ſome accidents come by ſuppreſſion of the termes, others come by corruption of the ſeede, but if the matter bee cold, it bringeth a drouſineſſe, being lifted up unto the braine, whereby the woman ſinketh downe as if ſhee were aſtoniſhed, and lyeth without motion, and ſenſe or feeling, and the beating of the arteries, and the breathing are ſo ſmall, that ſomtimes it is thought they are not at all, but that the woman is altogether dead. If it be more groſſe, it inferreth a convulſion; if it participate of the nature of a groſſe melancholick humour, it bringeth ſuch heavineſſe, fear, and ſorrowfulneſſe, that the party that is vexed therewith ſhall thinke that ſhee ſhall die preſently, and cannot be brought out of this minde by any meanes or reaſon: if of a cholerick humour, it cauſeth the madneſſe called *furor uterinus*, and ſuch a pratling, that they ſpeake all things that are to be concealed; and a giddineſſe of the head, by reaſon that the animal ſpirit is ſuddenly ſhaken by the admixtion of a putrefied vapour and hot ſpirit: but nothing is more admirable, than that this diſeaſe taketh the patient ſometimes with laughing, and ſometimes with weeping, for ſome at the firſt will weepe and then laugh in the ſame diſeaſe and ſtate thereof.

The cauſe of a drouſie madnes.

A hiſtory.

But it exceedeth all admiration which *Hollerius* writeth uſually happened to two of the daughters of the Provoſt of Roven. For they were held with long laughter for an houre or two before the fitte, which neither for feare, admonition, nor for any other meanes they could hold; and their parents chid them, and asked them wherefore they did ſo, they anſwered, that they were not able to ſtay their laughter. The aſcention of the wombe is diligently to bee diſtinguiſhed from the ſtrangulation thereof; for the accidents of the aſcention and of the ſtrangulation are not one, but the woman is onely oppreſſed with a certaine paine of the heart, difficulty of breathing, or ſwouning, but yet without feare, without raving or idle talking, or any other greater accident.

The aſcention of the womb is to be diſtinguiſhed from the ſtangulation.

Therefore often times contrary cauſes inferre the aſcention: that is, overmuch dryneſſe of the wombe, labouring through the defect of moyſture, whereby it is forced after too violent and immoderate evacuations of the flowers, and in childebed, and ſuch like, and laborious and painefull travell in child-birth, through which occaſion it waxeth hot, contrary to nature, and withereth and turneth it ſelfe with a certaine violence unto the parts adjoyning, that is to ſay, unto the liver, ſtomacke and midriffe: if happely it may draw ſome moyſture therehence unto it. I omit that the wombe may be brought unto its place upwards by often ſmelling to aromatick things, yet in the meane while it infers not the ſtrangulation that wee deſcribed before.

CHAP. XLV.

The ſignes of imminent ſtrangulation of the wombe.

BEfore that theſe forenamed accidents come, the woman thinks that a certaine painefull thing ariſeth from her wombe unto the orifice of the ſtomacke and heart, and ſhee thinketh her ſelfe to bee oppreſſed and choaked, ſhee complaineth her ſelfe to bee in great paine, and that a certaine lumpe or heavie thing climes up from the lower parts unto her throat, and ſtoppeth her winde, her heart burneth and panteth. And in many the wombe and veſſels of the wombe ſo ſwell, that they cannot ſtand upright on their legs, but are conſtrained to lye downe flat on their bellies, that they may bee the leſſe grieved with the paine, and to preſſe that downe ſtrongly with their hands, that ſeemeth to ariſe upwards, although that not the wombe it ſelfe, but the vapour aſcendeth from the wombe, as wee ſaid before: but when the fitte is at hand, their faces are pale on a ſudden, their underſtanding is darkened, they become ſlow and weak in the legges, with unableneſſe to ſtand. Hereof commeth ſound ſleepe, fooliſh talking, interception of the ſenſes, and breathe as if they were dead, loſſe of ſpeech, the contraction of their legs, and the like.

The wombe it ſelfe doth not ſo well make the aſcention as the vapour thereof.

CHAP. XLVI.

How to know whether the woman be dead in the ſtrangulation of the wombe or not.

I Have thought it meet (becauſe many women not onely in ancient times, but in our owne and our fathers memory have beene ſo taken with this kind of ſymptome, that they have beene ſuppoſed and layd out for dead, although truly they were alive:) to ſet downe the ſignes in ſuch a caſe which do argue life and death. Therefore firſt of all it may be proved, whether ſhe be alive or dead, by laying or holding a cleere and ſmooth looking-glaſſe before her mouth and noſtrils. For, if ſhe breathe, although it be never ſo obſcurely, the thin vapour that commeth out will ſtaine or make the glaſſe duskie. Alſo a fine downiſh feather taken from under the wing of any bird, or elſe a fine flocke being held before the mouth, will by the trembling or ſhaking motion thereof, ſhew that there is ſome breath, and therefore life remaining in the body. But you may prove moſt certainly whether there be any ſparke of life remaining in the body, by blowing ſome ſneeſing powders of pellitory of Spaine, & ellebore into the noſtrils. But though there no breath appeare, yet muſt you not judge the woman for dead, for the ſmall vitall heat, by which, being drawn into the heart, ſhe yet liveth, is contented with tranſpiration onely, and requires not much attraction, which is performed by the contraction & dilatation of the breaſt and lungs unto the preſervation of its ſelfe. For ſo flyes, gnats, piſmires and ſuch like, becauſe they are of a cold temperament, live unmoveably incloſed in the caves of the earth, no token of breathing appearing in them, becauſe there is a little heat left in them, which may be conſerved by the office of the arteries and heart, that is to ſay, by perſpiration, without the motion of the breaſt, becauſe the greateſt uſe of reſpiration is that the inward heat may be preſerved by refrigeration and ventilation. Thoſe that do not mark this, fall into that errour which almoſt coſt the life of him who in our time firſt gave life to anotomicall adminiſtration, that was almoſt decayed and neglected.

Women living taken for dead.

How women that have the ſuffocation of the wombe, live only by tranſpiration without breathing.

How flies, gnats and piſmires do live all the winter without breathing.

For he being called in Spaine to open the body of a noble woman which was ſuppoſed dead through ſtrangulation of the wombe, behold at the ſecond impreſſion of the inciſion knife, ſhe began ſuddenly to come to her ſelfe, and by the moving of her members and body, which was ſuppoſed to be altogether dead, and with crying, to ſhew manifeſt ſignes that there was ſome life remaining in her. Which thing

A hiſtory.

ſtrooke ſuch an admiration & horror into the hearts of all her friends that were preſent, that they accounted the Phyſician, being before of a good fame and report, as infamous, odious and deteſtable, ſo that it wanted but little but that they would have ſcratched out his eyes preſently: wherefore hee thought there was no better way for him, if he would live ſafe, than to forſake the countrey. But neither could hee ſo alſo avoyde the horrible pricke and inward wound of his conſcience (from whoſe judgment no offender can be abſolved) for his inconſiderate dealing, but within few dayes after, being conſumed with ſorrow, he dyed, to the great loſſe of the common wealth, and the art of phyſick.

Chap. XLVII.

How to know whether the ſtrangulation of the wombe comes of the ſuppreſsion of the flowers, or the corruption of the ſeed.

The ſignes of ſuffocation of the womb comming of corrupt ſeed.

The ſigns when it comes of the ſuppreſsion of the flowers.

THere are two chiefe cauſes eſpecially, as moſt frequently happening of the ſtrangulation of the wombe: but when it proceedeth from the corruption of the ſeed, all the accidents are more grievous and violent: difficulty of breathing goes before, and ſhortly after comes deprivation thereof; the whole habit of the body ſeemeth more cold than a ſtone: the woman is a widow: or elſe hath great ſtore or abundance of ſeed, and hath been uſed to the company of a man, by the abſence whereof ſhe was before wont to be pained with heavineſſe of the head, to loath her meat, and to bee troubled with ſadneſſe and feare, but chiefly with melancholy. Moreover when ſhe hath ſatisfied, and every way fulfilled her luſt, and then preſently on a ſudden begins to containe her ſelfe. It is very likely that ſhee is ſuffocated by the ſuppreſſion of the flowers, which formerly had them well and ſufficiently, which formerly hath bin fed with hot, moiſt, and many meats, and therefore engendring much bloud, which ſitteth much, which is grieved with ſome weight and ſwelling in the region of the belly, with paine in the ſtomacke, and a deſire to vomit, and with ſuch other accidents as come by the ſuppreſſion of the flowers. Thoſe who are freed from the fit of the ſuffocation of the wombe, either by nature or by art, in a ſhort time their colour commeth into their faces by little and little, and the whole body beginneth to wax ſtrong, and the teeth, that were ſet and cloſed faſt together, begin (the jawes being looſed) to open and uncloſe againe, and laſtly, ſome moiſture floweth from the ſecret parts with a certaine tickling pleaſure; but in ſome women, as in thoſe eſpecially in whom the necke of the wombe is tickled with the mydwives finger, in ſtead of that moyſture comes thick and groſſe ſeed, which moyſture or ſeed when it is fallen, the wombe being before as it were raging, is reſtored unto its owne proper nature and place, and by little and little all ſymptomes vaniſh away. Men by the ſuppreſſion of their ſeede have not the like ſymptomes as women have, becauſe mans ſeed is not ſo cold and moyſt, but far more perfect and better digeſted, and therefore more meet to reſiſt putrefaction, and whiles it is brought or drawn together by little and little, it is diſſipated by great and violent exerciſe.

The ſignes of one recovering of r from the ſuffocation of the wombe.

Why the ſuppreſsion of the ſeed is not perilous or deadly to men.

Chap. XLVIII.

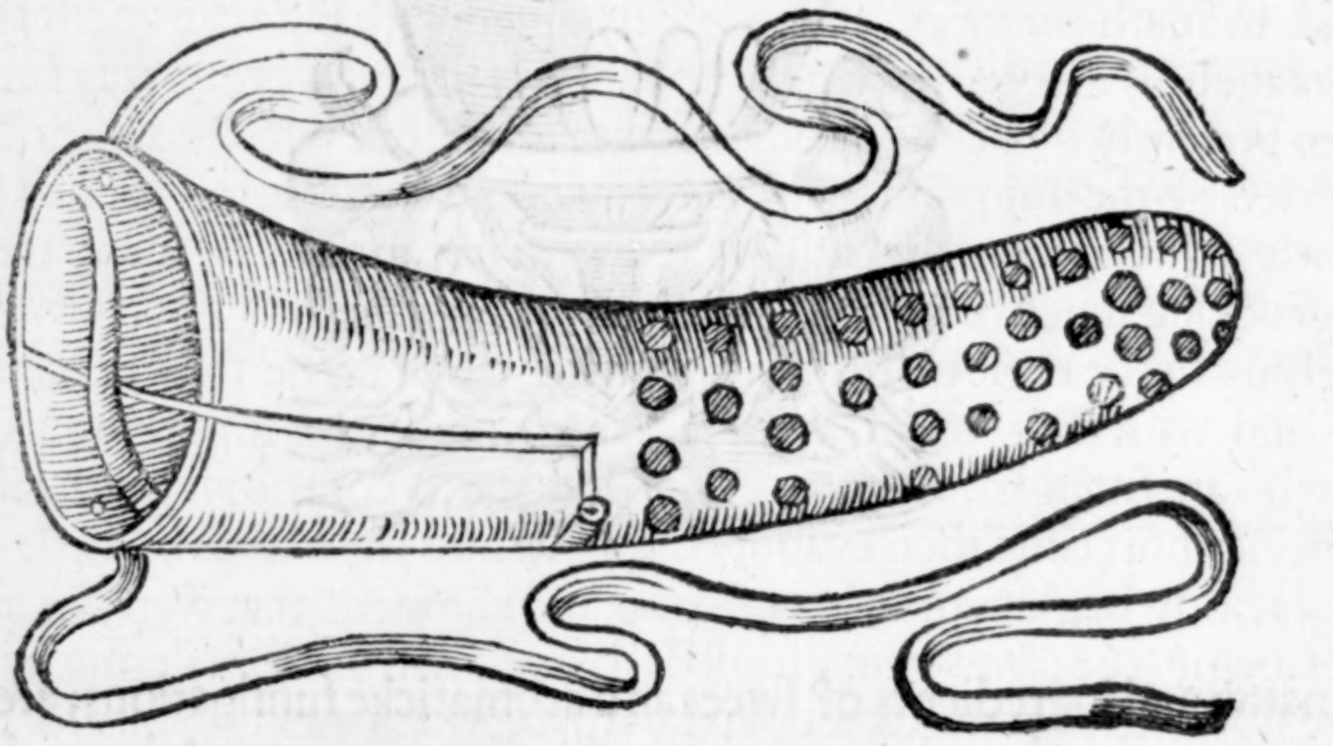
Of the cure of the ſtrangulation of the wombe.

The pulling of the haires of the lower parts are profitable both for this malady and for the cauſe of the ſame.

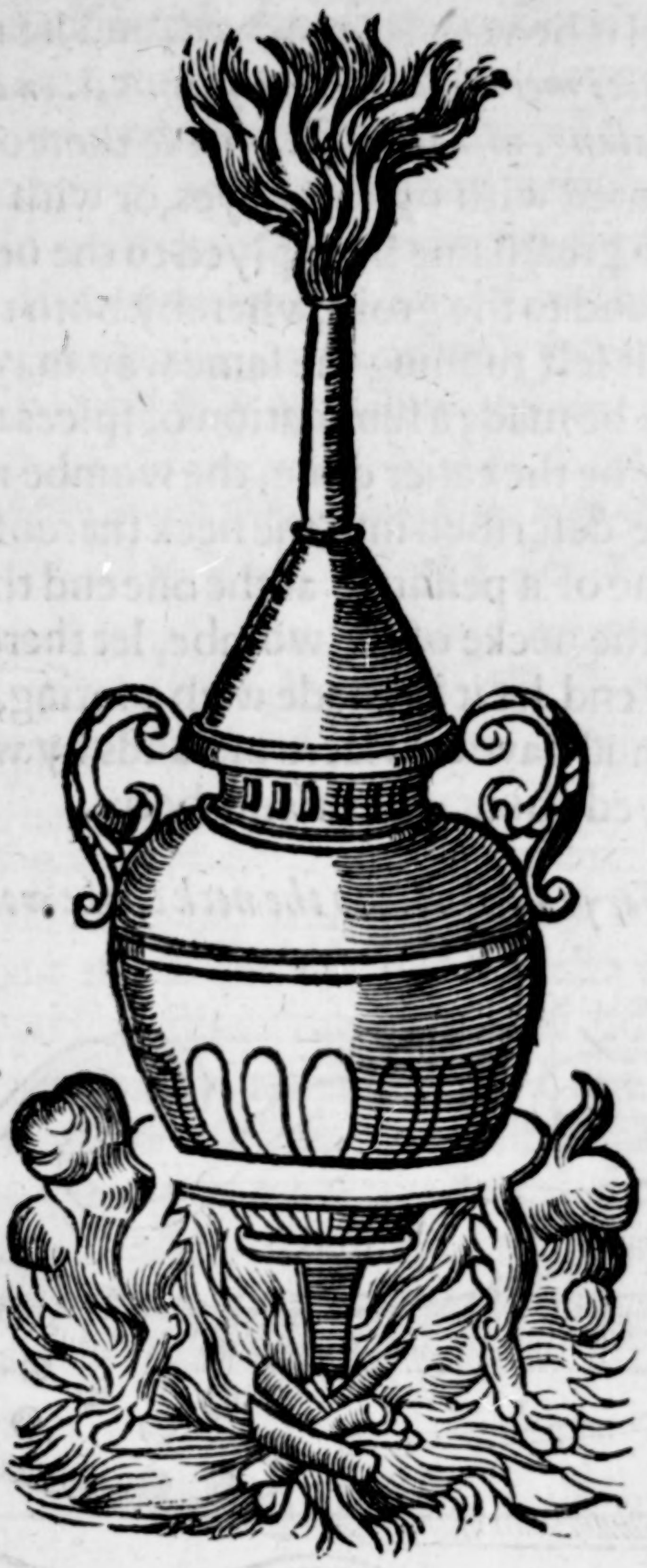
SEeing that the ſtrangulation of the wombe is a ſudden and ſharp diſeaſe, it therefore requireth a preſent and ſpeedy remedy, for if it be neglected it many times cauſeth preſent death. Therefore, when this malady commeth, the ſick woman muſt preſently be placed on her back, having her breaſt and ſtomack looſe, and all her clothes & garments ſlack & looſe about her, whereby ſhe may take breath the more eaſily; and ſhe muſt be called on by her owne name, with a loud voice in her eares, and pulled hard by the haires of the temples and neck, but yet eſpecially by the haires of the ſecret parts, that by provoking or cauſing paine in the lower parts, the patient may not onely be brought to her ſelfe againe, but alſo that the ſharpe and maligne vapour aſcending upwards, may be drawne downewards: the legs and armes muſt bee bound and tied with painefull ligatures, all the body muſt bee rubbed over with rough linnen clothes beſprinkled with ſalt and vinegar, untill it be very ſore and red, and let this peſſary following be put into the wombe. ℞. *ſucci mercurial. artemiſ. an.* ℥ii. *in quibus diſſolve pul. bened.* ʒiii. *pul. radic. enulæ camp. galang. minor. an.* ʒi. make thereof a peſſary. Then let the ſoales of her feet bee anoynted with oyle of bayes, or with ſome ſuch like oyle, let a great cupping-glaſſe with a great flame be applyed to the belly below the navell, to the inner part of the thigh, and to the groin, whereby both the matter that climes upwards, and alſo the womb it ſelf running the ſame way, may be brought downwards or drawn back. There may be made a fumigation of ſpices to be received up into the wombe, which, that it may be the eaſier done, the wombe may be held open by putting in this inſtrument here deſcribed into the neck thereof. Let it be made of gold, ſilver or latin into the forme of a peſſary; at the one end thereof, that is to ſay, that end which goeth up into the necke of the wombe, let there be made many holes on each ſide, but at the lower end let it be made with a ſpring, that it may open and ſhut as you wil have it. Alſo it muſt have two laces or bands by which it muſt be made faſt unto a ſwathe or girdle tyed about the patients belly.

A Peſſary.

The forme of a Peſſary to be put into the neck of the wombe to hold it open.



The deſcription of a veſſell made with a funnell or pipe for to fumigate the wombe.



The matter of ſweet fumigations.

The matter and ingredients of ſweet and aromaticke fumigations, are cinnamon, callam. aromat. lig. aloes, ladanum, benzoin, thyme, pepper, cloves, lavander, calaminth, mugwort, penniroyall, *alepta moſchat.* nutmegs, muske, moſſe, amber, ſquinant, and ſuch like, which for their ſweet ſmell and ſympathy, allure or entice the wombe downewards, by their heat conſume and digeſt the thicke vapours, and putrefied ill juice. Contrariwiſe, let the noſtrils bee perfumed with fœtide and ranke ſmels, and let theſe be made with *gum. galbanum, ſagapenum, ammoniacum, aſſa fœtida, bitumen,* oyle of Jeat, ſnuffe of a tallow candle when it is blowne out, with the fume of birds feathers, eſpecially of Partridges and Woodcocks, of mans haire or goats haire, of old leather, of horſe hoofes, and ſuch like things burned, whoſe noyſome or offenſive ſavour the wombe avoyding, doth returne unto its owne place or ſeate againe.

By what power ſweet fumigations do reſtore the womb unto its owne nature and place.

Stinking ſmels to be applied to the noſtrils.

Moreover it ſhall be very neceſſary to procure vomit by thruſting a gooſe feather downe into the throate, or elſe the haires of the patients owne head. Shortly after ſhee muſt uſe a potion of fifteene graines of blacke pepper bruiſed and diſſolved in *hydromel,* or water and hony mixed together, or in ſome ſtrong wine, which remedy *Avicen* holdeth for a ſecret.

Avicens ſecret for ſuffocation of the wombe.

Alſo in ſtead thereof three houres before meat ʒ ß. of treacle diſſolved in ℥ i. of the water of wormewood may be given her: Alſo it is thought that one drop of the oyle of Jeat dropped on the tongue, is a very profitable remedy. There bee ſome that allow a potion of halfe a dram of *Caſtoreum* diſſolved in white wine, or in the broth of a capon: alſo it is profitable not onely to give her treacle to drinke, but alſo

Caſtoreum drunken.

ſo to inject it into the wombe, being firſt diſſolved in *aqua vitæ*, and in the meane time to drop two drops of oyle of ſage, or ſome ſuch chymicall oyle into the eares. If ſhee bee drouſie or ſleepy, ſhe muſt be awaked or kept waking with ſneeſing powders of white ellebore and pellitory.

Expreſsions into the wombe.

It is alſo requiſite to inject glyſters both into the fundament and ſecret parts, which muſt be made of the decoction of things that diſcuſſe winde, as of calamint, mugwort, lavender, pennyroyall, chamomel, melilote, and ſuch like; and let peſſaries or ſuppoſitories be made of ladanum, ginger, *gallia moſchat.* treacle, mithridate, civet and muske, of the oyle of cloves, anniſeeds, ſage, roſemary, and ſuch like, chymically drawne; this following is a convenient deſcription of a glyſter. ℞. *radic. enulæ, camp. Ireos, ebuli, ariſtoloch. an.* ℥ i. *fol. abſynth. artemeſiæ, matricar. puleg. origani, an.* m. i. *baccarum lauri, juniperi & ſambuc. an.* p. i. *ſem. amios, cymini, rutæ an.* ʒ ii. *florum ſtœchados, roriſmarin. ſalviæ, centaur. minor. an.* p. ii. *fiat decoctio, cape colaturæ* ℔. i. *in qua diſſolve mellis anthoſati, ſacch. rubr. & bened. an.* ℥ i. *diacharth.* ʒ ii. *olei aneth. nard. an.* ℥ i ß. make thereof a glyſter, and apply this plaſter following to the belly. ℞. *maſs. empl. oxycrocei, & melilot. an.* ℥ iii. *olei nard.* as much as ſhall ſuffice to make it conveniently ſoft, make thereof a plaſter, and ſpread it on leather, and apply it to the region of the belly when the fitte is ended: if ſhe be married, let her forthwith uſe copulation, and bee ſtrongly encountered by her husband, for there is no remedy more preſent than this.

The matter of peſſaries.

A glyſter ſcattering groſſe vapours.

A quick, certain & a pleaſant remedy for the ſuffocation of the wombe.

Let the mydwife annoint her fingers with *oleum nardinum* or *moſchetalinum*, or of cloves, or elſe of ſpike mixed with muske, ambergreeſe, civet, and other ſweet powders, and with theſe let her rub or tickle the top of the necke of the wombe which toucheth the inner orifice; but her ſecret parts muſt firſt be warmed by the applying of warme linnen clothes, for ſo at length the venemous matter contained in the wombe, ſhall bee diſſolved and flow out, and the maligne, ſharpe and flatulent vapours, whereby the wombe is driven as it were into a fury or rage, ſhall bee reſolved and diſſipated, and ſo when the conjunct matter of the diſeaſe is ſcattered and waſted, the wombe, and alſo the woman ſhall bee reſtored unto themſelves againe. Some hold it for a ſecret to rub the navell with the juice of garlicke boyled and mixed with aloes.

Tickling of the neck of the wombe.

Chap. XLIX.

Of womens monethly fluxe or courſes.

VSually they call the fluxe of bloud, that iſſueth from the ſecret parts of women, monethly flowers or courſes, becauſe it happeneth to them every month ſo long as they are in health. There bee ſome which call them termes, becauſe they returne at their uſuall time. Many of the French men call it ſepmaines, becauſe in ſuch as ſit much, and are given to plentifull feeding, it endureth almoſt for the ſpace of ſeven dayes. Some call them purgations, becauſe that by this fluxe all a womans body is purged of ſuperfluous humours. There bee ſome alſo that call thoſe fluxes the flowers, becauſe that as in plants the flower buddeth out before the fruits, ſo in women kinde this flux goeth before the iſſue, or the conception thereof.

The reaſon of the names of the monthly flux of women.

For the courſes flow not before a woman bee able to conceive: for how ſhould the ſeede being caſt into the wombe have his nouriſhment and encreaſe, and how ſhould the child have his nouriſhment when it is formed of the ſeed, if this neceſſary humour were wanting in the wombe? yet it may bee ſome women may conceive without this fluxe of the courſes: but that is in ſuch as have ſo much of the humour gathered together, as is wont to remaine in thoſe which are purged, although it bee not ſo great a quantity that it may flow out, as it is recorded by *Ariſtotle*. But as it is in ſome very great, and in ſome very little, ſo it is in ſome ſeldome, and in ſome very often.

What women do conceive this flux not appearing at all.

There are ſome that are purged twice, and ſome thrice in a moneth, but it is altogether

What women have this menſtruall flux often, abundantly & for a longer ſpace than others.

together in thoſe who have a great liver, large veines, and are filled and fed with many and greatly nouriſhing meats, which ſit idely at home all day, which having ſlept all night, doe notwithſtanding lye in bed ſleeping a great part of the day alſo, which live in a hot, moyſt, rainie and ſoutherly ayre, which uſe warme bathes of ſweet waters and gentle frictions, which uſe and are greatly delighted with carnall copulation : in theſe and ſuch like women the courſes flow more frequently and abundantly.

What women have thi fluxe more ſeldome, leſſe, and a far more ſhort time than others.

But contrariwiſe, in thoſe that have ſmall and obſcure veines, in thoſe that have their bodies more furniſhed and bigge either with fleſh or with fat, are more ſeldome purged, and alſo more ſparingly, becauſe that the ſuperfluous quantity of bloud uſeth to goe into the habit of the body. Alſo tender, delicate and faire women are leſſe purged than thoſe that are browne and endued with a more compact fleſh, becauſe that by the rarity of their bodies, they ſuffer a greater waſting or diſſipation of their ſubſtance by tranſpiration. Moreover, they are not ſo greatly purged with this kind of purgation, which have ſome other ſolemne or accuſtomed evacuation in any other place of their body, as by the noſe or hemorrhoids.

Why young women are purged in the new of the Moone.

And as concerning their age, old women are purged when the Moone is old, and young women when the Moone is new, as it is thought. I thinke the cauſe thereof is, for that the Moone ruleth moyſt bodies, for by the variable motion thereof the Sea floweth and ebbeth, and bones, marrow and plants abound with their genitall humour.

Why old women are purged in the wane of the Moone.

Therefore young people which have much bloud, and more fluxible, and their bodies more fluxible, are ſoone moved unto a fluxe, although it bee even in the firſt quarter of the Moones riſingor increaſing : but the humours of old women, becauſe they wax ſtiffe as it were with cold, & are not ſo abundant, and have more denſe bodies and ſtraighter veſſels, are not ſo apt to a fluxe, nor do they ſo eaſily flow, except it bee in the full of the Moon, or elſe in the decreaſe ; that is to ſay, becauſe the bloud that is gathered in the full of the Moon falls from the body even of its own weight, for that by reaſon of the decreaſing or wane of the Moone this time of the month is more cold and moyſt.

Chap. L.

The cauſes of the monethly flux or courſes.

The materiall cauſe of the monthly fluxe.

BEcauſe a woman is more cold, and therefore hath the digeſtive faculty more weake, it commeth to paſſe, that ſhee requireth and deſireth more meate or foode than ſhee can digeſt or concoct : And becauſe that ſuperfluous humour that remaineth is not digeſted by exerciſe, nor by the efficacy of ſtrong and lively heat, therefore by the providence or benefit of nature it floweth out by the veines of the wombe, by the power of the expulſive faculty, at its owne certaine and prefixed ſeaſon or time. But then eſpecially it beginneth to flow, and a certaine crude portion of bloud to bee expelled, being hurtfull and maligne otherwiſe in no quality, when nature hath laid her principall foundations of the encreaſe of the body, ſo that in greatneſſe of the body, ſhe hath come as it were in a manner to the higheſt toppe, that is to ſay, from the thirteenth to the fiftieth yeare of our age.

When the monthly flux begins to flow.

The final cauſe.

A woman exceeds a man in quantity of bloud.

Moreover, the childe cannot bee formed in the wombe, nor have his nutriment or encreaſe without this fluxe : therefore this is another finall cauſe of the monethly flux. Many are perſwaded that women do farre more abound with bloud than men, conſidering how great an abundance of bloud they caſt forth of their ſecret parts every moneth, from the thirteenth to the fiftieth yeare of their age : how much women great with childe, of whom alſo many are menſtruall, yeelde unto the nutriment and encreaſe of the childe in their wombes, and how much Phyſicians take from women that are with childe by opening of a veine, which otherwiſe would bee delivered before their naturall and prefixed time ; how great a quantity thereof they avoid in the birth of their children, and for ten or twelve daies after, and how great a quantity of milk they ſpend for the nouriſhment of the child when they give ſucke, which milke is none other thing than blood made white by the power of the kernels that are in the dugges, which doth ſuffice to nouriſh the childe, be he great or little; yet notwithſtanding many nurſes in the meane while are menſtruall: and as that may be true, ſo certainely this is true, that one dramme (that I may ſo ſpeake) of a mans blood, is of more efficacy to nouriſh and encreaſe, than two pounds of womans blood, becauſe it is farre more perfect, more concocted, wrought, and better repleniſhed with abundance of ſpirits: whereby it commeth to paſſe that a man endued with a more ſtrong heat, doth more eaſily convert what meat ſoever he eateth into the nouriſhment & ſubſtance of his body; & if that any ſuperfluity remains, he doth eaſily digeſt and ſcatter it by inſenſible tranſpiration. But a woman being more cold than a man, becauſe ſhee taketh more than ſhee can concoct, doth gather together more humours, which becauſe ſhee cannot diſperſe, by reaſon of the unperfectneſſe and weakeneſſe of her heat, it is neceſſary that ſhee ſhould ſuffer, and have her monethly purgation, eſpecially when ſhee groweth unto ſome bigneſſe; but there is no ſuch need in a man.

A man exceedeth a woman in the quality of his blood.

A man is more hot than a woman, and therefore not menſtruall.

Chap. LI.

The cauſes of the ſuppreſsion of the courſes or menſtruall fluxe.

THe courſes are ſuppreſſed or ſtopped by many cauſes, as by ſharpe vehement, and long diſeaſes, by feare, ſorrow, hunger, immoderate labours, watchings, fluxes of the belly, great bleeding, hœmorrhoides, fluxes of blood at the mouth, and evacuations in any other part of the body whatſoever, often opening of a veine, great ſweats, ulcers flowing much and long, ſcabbineſſe of the whole skinne, immoderate groſſeneſſe and clammineſſe of the blood, and by eating of raw fruites, and drinking of cold water, by ſluggiſhneſſe and thickneſſe of the veſſels, and alſo the obſtruction of them by the defaults and diſeaſes of the wombe, by diſtemperature, an abſceſſe, an ulcer, by the obſtruction of the inner orifice thereof, by the growing of a Callus, caruncle, cicatrize of a wound or ulcer, or membrane growing there, by injecting of aſtringent things into the necke of the wombe, which place many women endeavour fooliſhly to make narrow: I ſpeake nothing of age, greatneſſe with child, & nurſing of children, becauſe theſe cauſes are not beſides nature, neither doe they require the helpe of the Phyſitian.

The fooliſh endeavour of making the orifice of the wombe narrow, is rewarded with the diſcommodity of ſtopping of the flowers.

Many women, when their flowers or tearmes be ſtopped, degenerate after a manner into a certaine manly nature, whence they are called *Viragines*, that is to ſay, ſtout, or manly women; therefore their voice is more loud and bigge, like unto a mans, and they become bearded.

What women are called *viragines.*

In the city *Abdera* (ſaith Hippocrates) *Phaethuſa* the wife of *Pytheas* at the firſt did beare children and was fruitfull, but when her husband was exiled, her flowers were ſtopped for a long time: but when theſe things happened, her body became manlike and rough, and had a beard, and her voice was great and ſhrill. The very ſame thing happened to *Namyſia* the wife of *Gorgippus* in *Thaſus*. Thoſe virgins that from the beginning have not their monethly fluxe, and yet neverthleſſe enjoy their perfect health, they muſt neceſſarily be hot and dry, or rather of a manly heat and dryneſſe, that they may ſo diſperſe and diſſipate by tranſpiration, as men doe, the excrements that are gathered, but verily all ſuch are barren.

Lib. 6. epidem. ſect. 7.

The women that are called *viragines* are barren.

Chap. LII.

What accidents follow the ſuppreſsion or ſtopping of the monthly fluxe or flowers.

WHen the flowers or monethly fluxe are ſtopped, diſeaſes affect the womb, and from thence paſſe into all the whole body. For thereof commeth ſuffocation of the womb, head ache, ſwouning, beating of the heart, and ſwelling of the breaſts and ſecret parts, inflammation of the wombe, an abſceſſe, ulcer, cancer, a feaver, nauſeouſneſſe, vomitings, difficult and ſlow concoction, the dropſie, ſtrangury, the full wombe preſſing upon the orifice of the bladder, blacke and bloody urine, by reaſon that portion of the blood ſweateth out into the bladder. In many women the ſtopped matter of the monethly fluxe is excluded by vomiting, urine, and the hœmorrhoides, in ſome it groweth into *varices*. In my wife, when ſhee was a maide, the menſtruall matter was excluded and purged by the noſtrills. The wife of *Peter Feure* of *Caſteaudun*, was purged of her menſtruall matter by the dugges every moneth, and in ſuch abundance, that ſcarce three or foure cloaths were able to dry it and ſucke it up.

Why the ſtrangury, or bloodineſſe of the urine followeth the ſuppreſsion of the flowers.

Hiſtories of ſuch as were purged of their menſtruall flux by the noſe and dugges.

In thoſe that have not the fluxe monethly to evacuate this plenitude by ſome part or place of the body, there often followes difficulty of breathing, melancholy, madneſſe, the gout, an ill diſpoſition of the whole body, diſſolution of the ſtrength of the whole body, want of appetite, a conſumption, the falling ſickeneſſe, an apoplexie.

Thoſe whoſe blood is laudable, yet not ſo abundant, doe receive no other diſcommodity by the ſuppreſſion of the flowers, unleſſe it be that the wombe burnes or itcheth with the deſire of copulation, by reaſon that the wombe is diſtended with hot and itching blood, eſpecially if they lead a ſedentary life. Thoſe women that have beene accuſtomed to beare children, are not ſo grieved and evill at eaſe when their flowers are ſtopped by any chance contrary to nature, as thoſe women which did never conceive, becauſe they have beene uſed to be filled, and the veſſels by reaſon of their cuſtomary repletion and diſtention, are more large and capacious: when the courſes flow, the appetite is partly dejected, for that nature, being then wholly applied to expulſion, cannot throughly concoct or digeſt, the face waxeth pale, and without its lively colour, becauſe that the heat with the ſpirits, go from without inwards, ſo to helpe and aide the expulſive faculty.

To what women the ſuppreſsion of the moneths is moſt grievous

Chap. LIII.

Of provoking the flowers or courſes.

THe ſuppreſſion of the flowers is a plethorick diſeaſe, and therefore muſt be cured by evacuation, which muſt be done by opening the veine called *Saphena* which is at the ankle, but firſt let the baſilike veine of the arme be opened, eſpecially if the body bee plethoricke, leſt that there ſhould a greater attraction be made into the wombe, and by ſuch attraction or flowing in, there ſhould come a greater obſtruction. When the veines of the wombe are diſtended with ſo great a ſwelling that they may be ſeen, it will be very profitable to apply horſe-leeches to the necke thereof: peſſaries for women may be uſed; but fumigations of aromaticke things are more meet for maides, becauſe they are baſhfull and ſhamefaced. Unguents, liniments, emplaſters, cataplaſmes, that ſerve for that matter, are to bee preſcribed and applied to the ſecret parts, ligatures and frictions of the thighes and legges are not to bee omitted, fomentations and ſternutatories are to be uſed, and cupping glaſſes are to bee applied to the groines, walking, dancing, riding, often and wanton copulation with her husband, and ſuch like exerciſes, provoke

Why the veine called *baſilica* in the arme muſt be opened before the vein *ſaphena* in the foot.

Horſe-leeches to be applied to the neck of the wombe.

Plants that provoke the flowers

voke the flowers. Of plants, the flowers of St. Johns wort, the rootes of fennell, and aſparagus, bruſcus or butchers broom, of parſley, brooke-lime, baſill, balme, betony, garlicke, onions, criſta marina, coſtmary, the rinde or barke of caſſia fiſtula, calamint, origanum, pennyroyall, mugwort, thyme, hiſſope, ſage, marjoram, roſemary, horehound, rue, ſavine, ſpurge, ſaffron, agaricke, the flowers of elder, bay berries, the berries of Ivie, ſcammony, *Cantharides*, *pyrethrum* or pellitory of Spaine, *euphorbium*. The aromaticke things are *amomum*, cynamon, ſquinanth, nutmegs, *calamus aromaticus*, *cyperus*, ginger, cloves, galangall, pepper, cubibes, amber, muske, ſpiknard, and ſuch like; of all which let fomentations, fumigations, baths, broaths, boles, potions, pills, ſyrupes, apozemes, and opiates be made as the Phyſitians ſhall thinke good.

Sweet things.

An apozeme to provoke the flowers.

The apozeme that followeth is proved to be very effectuall. ℞. *fol. & flor. dictam. an.* p ii. *pimpinel.* m ß. *omnium capillar. an.* p i. *artemiſ. thymi, marjor. origan. an.* m ß. *rad. rub. major. petroſelin. fænicul. an.* ℥ i ß. *rad. pæon. biſtort. an.* ʒ ß. *cicerum rub. ſem. pæon. fænicul. an.* ʒ ß. make thereof a decoction in a ſufficient quantity of water, adding thereto cinamon ʒ iii. in one pinte of the decoction diſſolve (after it is ſtrained) of the ſyrupe of mugwort, and of hiſſope, *an.* ℥ ii. *diarrhod. abbat.* ʒ i. let it bee ſtrained through a bagge, with ʒ ii. of the kernells of dates, and let her take ℥ iiii. in the morning.

Let peſſaries bee made with *galbanum*, *ammoniacum*, and ſuch like mollifying things, beaten into a maſſe in a mortar with a hot peſtell, and made into the forme of a peſſary, and then let them be mixed with oile of Jaſmine, *euphorbium*, an oxe gall, the juice of mugwort, and other ſuch like, wherein there is power to provoke the flowers, as with ſcammony in powder: let them be as bigge as ones thumbe, ſixe fingers long, and rowled in lawne, or ſome ſuch like thinne linnen cloath; of the ſame things nodula's may bee made. Alſo peſſaries may be prepared with hony boyled, adding thereto convenient powders, as of ſcammony, pellitory, and ſuch like. Neither ought theſe to ſtay long in the necke of the wombe, leſt they ſhould exulcerate, and they muſt be pulled backe by a threed that muſt bee put through them, and then the orifice of the womb muſt be fomented with white wine of the decoction of pennyroyall or mother-wort.

What cauſes of the ſtopping of the flowers muſt be cured before the diſeaſe it ſelfe.

But it is to be noted, that if the ſuppreſſion of the flowers happeneth through the default of the ſtopped orifice of the womb, or by inflammation, theſe maladies muſt firſt bee cured before wee come unto thoſe things that of their proper ſtrength and vertue provoke the flowers: as for example, if ſuch things be made and given when the wombe is enflamed, the blood being drawne into the grieved place, and the humours ſharpened, and the body of the wombe heated, the inflammation will be encreaſed. So if there be any ſuperfluous fleſh, if there be any Callus of a wound or ulcer, or if there be any membrane ſhutting the orifice of the wombe, and ſo ſtopping the fluxe of the flowers, they muſt firſt bee conſumed and taken away before any of thoſe things bee adminiſtred. But the oportunity of taking and applying of things, muſt be taken from the time wherein the ſicke woman was wont to be purged before the ſtopping, or if ſhe never had the flowers, in the decreaſe of the moone; for ſo we ſhall have cuſtome, nature, and the externall efficient cauſe to helpe art. When theſe medicines are uſed, the women are not to bee put into bathes or hot houſes, as many doe, except the malady proceed from the denſity of the veſſels, and the groſſeneſſe and clammineſſe of the blood. For ſweats hinder the menſtruall fluxe, by diverting and turning the matter another way.

The fitteſt time to provoke the flowers.

Why hot houſes do hurt thoſe in whom the flowers are to be provoked.

Chap. LIIII.

The ſignes of the approaching of the menſtruall fluxe.

What women do love and what women doe loath the act of generation when the moneths are ſtopped.

WHen the monethly fluxe firſt approacheth, the dugges itch and become more ſwollen and hard than they were wont, the woman is more deſirous of copulation, by reaſon of the ebullition of the provoked blood, and the acrimony of the blood that remaineth, her voice becommeth bigger, her ſecret parts itch, burne, ſwell, and waxe red. If they ſtay long, ſhee hath paine in her loynes and head, nauſeouſneſſe and vomiting troubleth the ſtomacke: notwithſtanding, if thoſe matters which flow together in the wombe, either of their owne nature, or by corruption, be cold, they loath the act of generation, by reaſon that the wombe waxeth feeble through ſluggiſhneſſe and watery humours filling the ſame, and it floweth by the ſecret parts very ſoftly. Thoſe maides that are marriageable, although they have the menſtruall fluxe very well, yet they are troubled with head ache, nauſeouſneſſe, and often vomiting, want of appetite, longing, an ill habite of body, difficulty of breathing, trembling of the heart, ſwouning, melancholy, fearfull dreames, watching, with ſadneſſe and heavineſſe, becauſe that the genitall parts burning & itching, they imagine the act of generation, whereby it commeth to paſſe that the ſeminall matter, either remaining in the teſticles in great abundance, or elſe powred into the hollowneſſe of the womb, by the tickling of the genitalls, is corrupted, and acquireth a venemous quality, and cauſeth ſuch like accidents as happens in the ſuffocation of the wombe.

With what accidents thoſe that are mariageable and are not maried, are troubled.

The cauſe of ſo many accidents

Maides that live in the country are not ſo troubled with thoſe diſeaſes, becauſe there is no ſuch lying in wait for their maiden-heads, and alſo they live ſparingly and hardly, and ſpend their time in continuall labour. You may ſee many maides ſo full of juice, that it runneth in great abundance, as if they were not menſtruall, into their dugges, and is there converted into milke, which they have in as great quantity as nurſes, as we read it recorded by *Hippocrates*. If a woman which is neither great with child, nor hath born children, hath milke, ſhe wants the menſtruall fluxes; whereby you may underſtand that that concluſion is not good which affirmeth that a woman which hath milke in her breaſts, either to be delivered of childe, or to be great with childe: for *Cardanus* writeth that hee knew one *Antony Buzus* at *Genua*, who being thirty yeeres of age, had ſo much milk in his breaſts as was ſufficient to nurſe a child; for the breeding and efficient cauſe of milke proceeds not onely from the engrafted faculty of the glandulous ſubſtance, but much rather from the action of the mans ſeed; for proofe whereof you may ſee many men that have very much milk in their breaſts, and many women that almoſt have no milke, unleſſe they receive mans ſeed. Alſo women that are ſtrong and luſty like unto men, which the Latines call *Viragines*, that is to ſay, whoſe ſeed commeth unto a manly nature, when the flowers are ſtopped, concoct the blood, and therefore when it wanteth paſſage forth, by the likeneſſe of the ſubſtance it is drawne into the duggs, and becommeth perfect milk: thoſe that have the flowers plentifully and continually for the ſpace of foure or five daies, are better purged and with more happy ſucceſſe than thoſe that have them for a longer time.

Aph. 36, ſect. 5.

Lib. 2. de ſubt.

The efficient cauſe of the milke is to be noted.

Chap. LV.

What accidents follow immoderate fluxes of the flowers or courſes.

IF the menſtruall flux floweth immoderately, there alſo followes many accidents; for the cocoction is fruſtrated, the appetite overthrown, then followes coldneſſe throughout all the body, exolution of all the faculties, an ill habite of all the body, leanneſſe, the dropſie, a hecticke feaver, convulſion, ſwouning, and often ſodaine death: if any have them too exceeding immoderately, the blood is ſharpe and burning, and alſo ſtinking, the ſicke woman is troubled with a continuall feaver, and her tongue will bee dry, ulcers ariſe in the gummes and all the whole mouth. In women the flowers doe flow by the veines and arteries which riſe out of the ſpermaticke veſſels, and are ended in the bottome and ſides of the wombe, but in virgins and in women great with childe, whoſe children are ſound and healthfull, by the branches of the hypogaſtrick veine and artery, which are ſpred and diſperſed over the necke of the wombe. The cauſe of this immoderate flux is in the quantity or quality of the blood, in both the fault is unreaſonable copulation, eſpecially with a man that hath a yard of a monſtrous greatneſſe, and the diſſolution of the retentive faculty of the veſſels: oftentimes alſo the flowers flow immoderately by reaſon of a painfull & a difficult birth of the child or the after-birth, being pulled by violence from the cotyledons of the wombe, or by reaſon that the veines and arteries of the necke of the wombe are torne by the comming forth of the infant with great travell, and many times by the uſe of ſharpe medicines, and exulcerating peſſaries. Often times alſo nature avoides all the juice of the whole body critically by the wombe after a great diſeaſe, which fluxe is not raſhly or ſodainely to be ſtopped. That menſtruall blood that floweth from the wombe is more groſſe, blacke, and clotty, but that which commeth from the necke of the wombe is more cleere, liquid and red.

By what pores the flowers doe flow in a woman and in a maide.

The cauſes of an unreaſonable fluxe of blood.

The criticall fluxe of the flowers.

The ſignes of blood flowing from the womb or necke of the wombe.

Chap. LVI.

Of ſtopping the immoderate flowing of the flowers or courſes.

YOu muſt make choice of ſuch meats and drinkes as have power to incraſſate the blood, for as the flowers are provoked with meats that are hot, and of ſubtle parts, ſo they are ſtopped by ſuch meates as are cooling, thickening, aſtringent and ſtipticke, as are barly waters, ſodden rice, the extreme parts of beaſts, as of oxen, calves, ſheep, either fryed or ſodden with ſorrell, purſlaine, plantaine, ſhepheards purſe, ſumach, the buds of brambles, berberries, and ſuch like. It is ſuppoſed that a harts horne burned, waſhed, and taken in aſtringent water, will ſtoppe all immoderate fluxes; likewiſe *ſanguis draconis, terra ſigillata, bolus armenus, lapis hæmatites*, corall beaten into moſt ſubtle powder and drunke in ſteeled water; alſo pappe made with milk, wherein ſteele hath often times been quenched, and the floure of wheat, barly, beanes or rice, is very effectuall for the ſame. Quinces, cervices, medlars, cornelian berries, or cherries may likewiſe be eaten at the ſecond courſe, Juleps are to be uſed of ſteeled waters, with the ſyrupe of dry roſes, pomegranates, ſorrell, myrtles, quinces, or old conſerves of red roſes, but wine is to bee avoided: but if the ſtrength be ſo extenuated that they require it, you muſt chooſe groſſe and aſtringent wine tempered with ſteeled water; exerciſes are to be ſhunned, eſpecially venereous exerciſes, anger is to bee avoided, a cold aire is to be choſen, which, if it be not ſo naturally, muſt bee made ſo by ſprinkeling cold things on the ground, eſpecially if the ſummer or heat bee then in his full ſtrength; ſound ſleeping ſtayes all evacuations except ſweating. The opening of a

The inſtitution or order of life.

veine in the arme, cupping glaſſes faſtened on the breaſts, bands, and painfull frictions of the upper parts are greatly commended in this malady.

Purging.

But if you perceive that the cauſe of this accident lieth in a cholerick ill juice mixed with the blood, the body muſt bee purged with medicines that purge choler and water, as Rubarbe, Myrobalanes, Tamarinds, Sebeſtens, and the purging ſyrupe of roſes.

Chap. LVII.

Of locall medicines to bee uſed againſt the immoderate flowing of the Courſes.

An unguent.

ALſo unguents are made to ſtay the immoderate fluxe of the tearmes, and likewiſe injections and peſſaries This or ſuch like may bee the forme of an unguent. ℞. *ol. maſtich. & myrt. an.* ʒ ii. *nucum cupreſ. olibani, myrtil. an.* ʒ ii. *ſucci roſar. rubr.* ℥ i. *pulv. maſtichin.* ℥ ii. *boli armen. terræ ſigillat. an.* ʒ ß. *ceræ quantum ſufficit, fiat unguentum.* An injection may be thus made. ℞. *aq. plantag. roſar. rubrar. burſæ paſtor. centinodii, an.* ℔ ß. *corticis querni, nucum cupreſſi, gallar. non maturar. an.* ʒ ii. *berberis, ſumach. balauſt. alumin. roch. an.* ʒ i. make thereof a decoction, and inject it with a ſyringe blunt pointed into the wombe, leſt if it ſhould be ſharpe it might hurt the ſides of the necke of the wombe; alſo ſnailes beaten with their ſhells and applied to the navell, are very profitable. Quinces roaſted under the coals, and incorporated with the powder of myrtills, and bole armenick, and put into the necke of the wombe, are marvellous effectuall for this matter. The forme of a peſſary may be thus. ℞. *gallar. immaturar. combuſt. & in aceto extinctar.* ʒ ii. *ammo.* ʒ ß. *ſang. dracon. pul. rad. ſymphyt. ſumach. maſtich. ſucci acaciæ, cornu cer. uſt. colophon, myrrhæ, ſcoriæ ferri, an.* ʒ i. *caphur.* ℈ ii. mixe them, and incorporate them all together with the juice of knot-graſſe, ſyngreen, night-ſhade, henbane, water lillies, plantaine, of each as much as is ſufficient, and make thereof a peſſary:

An aſtringent injection.

Aſtringent peſſaries.

Cooling things, as oxycrate, *unguentum roſatum,* and ſuch like, are with great profit uſed to the region of the loines, thighes, and genitall parts: but if this immoderate flux doe come by eroſion, ſo that the matter thereof continually exulcerateth the necke of the wombe, let the place be anointed with the milke of a ſhee Aſſe, with barly water, or binding and aſtringent mucelages, as of *pſilium,* quinces, gumme tragacanth, arabicke, and ſuch like.

Chap. LVIII.

Of womens fluxes, or the Whites.

The reaſon of the name.

The differences

BEſides the forenamed fluxe, which by the law of nature happeneth to women monethly, there is alſo another called a womans fluxe, becauſe it is onely proper and peculiar to them: this ſometimes wearieth the woman with a long and continuall diſtillation from the wombe, or through the wombe, comming from the whole body without paine, no otherwiſe than when the whole ſuperfluous filth of the body is purged by the reines or urine; ſometimes it returneth at uncertaine ſeaſons, and ſometimes with pain and exulcerating the places of the wombe: it differeth from the menſtruall fluxe, becauſe that this for the ſpace of a few dayes, as it ſhall ſeeme convenient to nature, caſteth forth laudable blood, but this womans fluxe yeeldeth impure ill juice, ſometimes ſanious, ſometimes ſerous and livide, otherwhiles white and thicke, like unto barly creame, proceeding from flegmaticke blood: this laſt kind thereof is moſt frequent. Therefore wee ſee women that are flegmaticke, and of a ſoft and looſe habite of body, to be often troubled with this diſeaſe, and therefore they will ſay among themſelves

What women are apt to this fluxe.

ſelves that they have the whites. And as the matter is divers, ſo it will ſtaine their ſmockes with a different colour. Truely if it bee perfectly red and ſanguine, it is to be thought that it commeth by erroſion, or the exolution of the ſubſtance of the veſſels of the wombe, or of the necke thereof: therefore it commeth very ſeldome of blood, and not at all except the woman be either great with childe, or ceaſe to bee menſtruall for ſome other cauſe; for then in ſtead of the monethly fluxe there floweth a certaine whayiſh excrement, which ſtaineth her cloaths with the colour of water wherein fleſh is waſhed.

Womens fluxe commeth very ſeldome of blood.

Alſo it very ſeldome proceeds of a melancholy humour, and then for the moſt part it cauſeth a cancer in the wombe. But often times the purulent and bloody matter of an ulcer lying hidden in the wombe, deceiveth the unskilfull Chirurgian or Phyſitian: but it is not ſo hard to know theſe diſeaſes one from the other; for the matter that floweth from an ulcer, becauſe (as it is ſaid) it is purulent, it is alſo leſſer, groſſer, ſtinking, and more white. But thoſe that have ulcers in thoſe places, eſpecially in the necke of the wombe, cannot have copulation with a man without paine.

By what ſignes an ulcer in the wombe may be known from the white flowers.

Chap. LIX.

Of the cauſes of the Whites.

Sometimes the cauſe of the whites conſiſteth in the proper weakneſſe of the wombe, or elſe in the uncleanneſſe thereof, and ſometimes by the default of the principall parts. For if the brain or the ſtomacke be cooled, or the liver ſtopped or ſchirrous, many crudities are engendered, which if they runne or fall downe into the wombe that is weake by nature, they cauſe the fluxe of the wombe, or whites: but if this fluxe be moderate and not ſharpe, it keepeth the body from maligne diſeaſes; otherwiſe it uſeth to inferre a conſumption, leanneſſe, paleneſſe, and an œdematous ſwelling of the legges, the falling downe of the wombe, the dejection of the appetite and all the faculties, and continuall ſadneſſe and ſorrowfulneſſe; from which it is very hard to perſwade the ſicke woman, becauſe that her minde and heart will bee almoſt broken, by reaſon of the ſhame that ſhee taketh becauſe ſuch filth floweth continually; it hindereth conception, becauſe it either corrupteth, or driveth out the ſeed when it is conceived. Often times, if it ſtoppeth for a few moneths, the matter that ſtayeth there cauſeth an abſceſſe about the wombe in the body or necke thereof, and by the breaking of the abſceſſe there followeth rotten and cancerous ulcers, ſometimes in the wombe, ſometimes in the groine, and often in the hippes.

How a womans fluxe is wholſome.

How it cauſeth diſeaſes.

How it letteth the conception.

This diſeaſe is hard to bee cured, not onely by reaſon of it ſelfe, as becauſe all the whole filth and ſuperfluous excrements of a womans body floweth downe into the womb, as it were into a ſink, becauſe it is naturally weak, hath an inferiour ſituation, many veſſells ending therein; and laſt of all, becauſe the courſes are wont to come through it; as alſo by reaſon of the ſicke woman, who often times had rather dye than to have that place ſeene, the diſeaſe knowne, or permit locall medicines to bee applied thereto: for ſo ſaith *Montanus*, that on a time hee was called to a noble woman of *Italy* who was troubled with this diſeaſe, unto whom hee gave counſell to have cleanſing decoctions injected into her wombe, which when ſhee heard, ſhe fell into a ſwoune, and deſired her husband never thereafter to uſe his counſell in any thing.

Why it is hard to be cured.

A hiſtory.

Chap. LX.

The cure of the Whites.

If the fluxe of a woman be red, wherein it differeth from the menſtruall flux.

A womans flux is not ſuddenly to be ſtopped.

What baths are profitable.

An aſtringent injection.

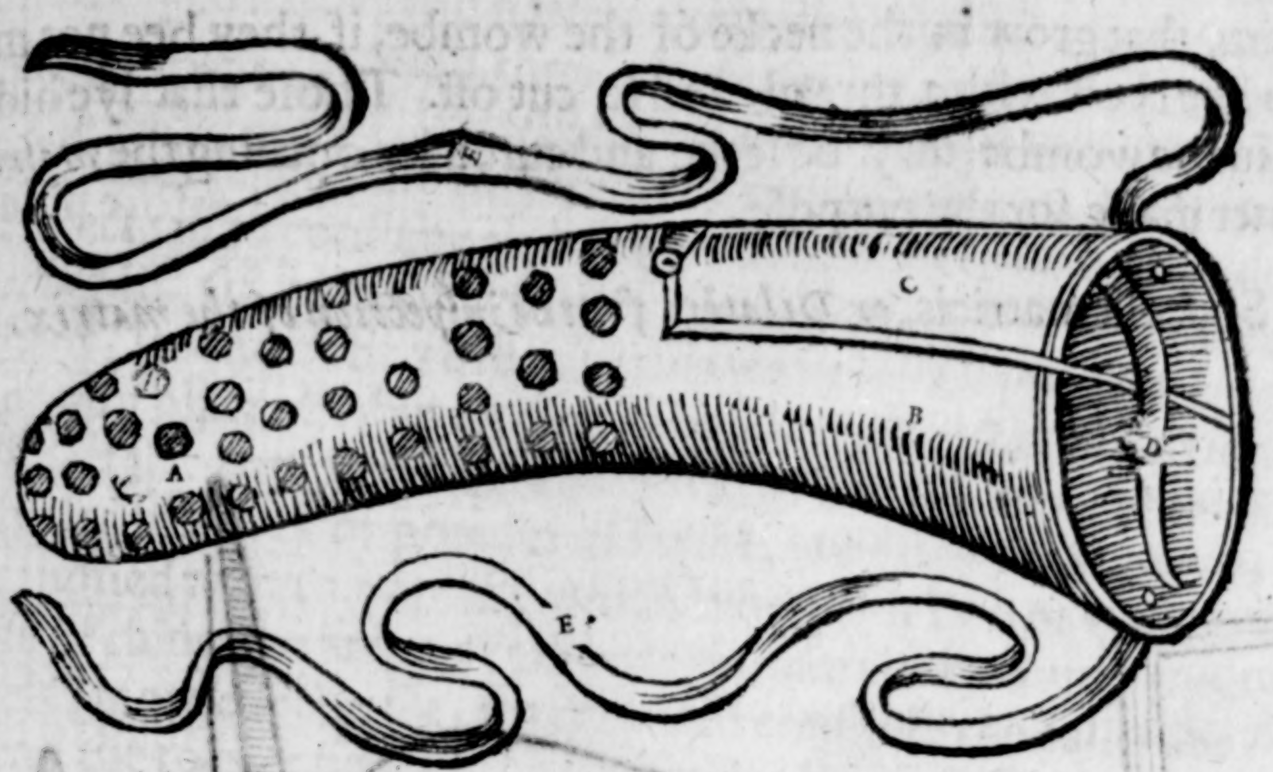
IF the matter that floweth out in this diſeaſe bee of a red colour, it differeth from the naturall monthly fluxe in this onely, becauſe it keeps no order or certain time in its returning. Therfore phlebotomy and other remedies which we have ſpoken of, as requiſite for the menſtruall fluxe when it floweth immoderately, is here neceſſary to be uſed. But if it bee white, or doth teſtifie or argue the ill juice of this or that humour by any other colour, a purgation muſt be preſcribed of ſuch things as are proper to the humour that offends: for it is not good to ſtop ſuch a flux ſuddenly; for it is neceſſary, that ſo the body ſhould be purged of ſuch filth or abundance of humours: for they that doe haſten to ſtop it, cauſe the dropſie, by reaſon that this ſinke of humours is turned backe into the liver; or elſe a cancer in the womb, becauſe it is ſtayed there; or a feaver, or other diſeaſes, according to the condition of the part that receiveth it. Therefore we muſt not come to locall deterſives, deſiccatives, reſtrictives, unleſſe we have firſt uſed univerſall remedies according to art. Alom baths, baths of brimſtone, and of bitumen, or iron, are convenient for the whites that come of a phlegmaticke humour; inſtead whereof bathes may bee made of the decoction of herbes that are hot, dry, and endued with an aromaticke power, with alome and pebbles, or flint-ſtones red hot throwne into the ſame. Let this bee the forme of a cleanſing decoction and injection. ℞. *fol. abſynth. agrimon. centinod. burſ. paſt. an.* m ß. boyle them together, and make thereof a decoction, in which diſſolve *mellis roſar.* ℥ ii. *aloes, myrrhæ, ſalis nitri, an.* ʒ i. make thereof an injection, the woman being ſo placed on a pillow under her buttockes that the necke of the wombe being more high, may be wide open: when the injection is received, let the woman let her legges acroſſe, and draw them up to her buttockes, and ſo ſhee may keepe that which is injected. They that endeavour to dry and bind more ſtrongly, adde the juice of *acatia*, greene galles, the rindes of pomegranates, roch alome, romane vitrioll, and they boile them in Smithes water and red wine; peſſaries may be made of the like faculty.

The ſignes of a putrefyed ulcer in the wombe.

The virulent *Gonorrhæa* is like unto the fluxe of women.

If the matter that commeth forth be of an ill colour or ſmell, it is like that there is a rotten ulcer; therefore we ought to inject thoſe things that have power to correct the putrefaction: among which *ægyptiacum*, diſſolved in lye or red wine, excelleth. There are women which when they are troubled with a virulent *Gonorrhæa*, or an involuntary fluxe of the ſeed, cloaking the fault with an honeſt name, doe untruly ſay that they have the whites, becauſe that in both theſe diſeaſes a great abundance of filth is voided. But the Chyrurgian may eaſily perceive that malady by the rottenneſſe of the matter that floweth out, and hee ſhall perſwade himſelfe that it will not bee cured without ſalivation or fluxing at the mouth, and ſweats. In the meane while let him put in an inſtrument made like unto a peſſary, and cauſe the ſicke woman to hold it there: this inſtrument muſt have many holes in the upper end, through which the purulent matter may paſſe, which by ſtaying or ſtopping might get a ſharpneſſe; as alſo that ſo the womb may breathe the more freely, and may be kept more temperate and coole by receiving the aire, by the benefit of a ſpring whereby this inſtrument, being made like unto a peſſary, is opened and ſhut.

The forme of an inſtrument made like unto a peſſary, whereby the wombe may bee ventilated.



A. *ſheweth the end of the inſtrument, which muſt have many holes therein.*
B. *ſheweth the body of the inſtrument.*
C. *ſheweth the plate whereby the mouth of the inſtrument is opened and ſhut, as wide and as cloſe as you will, for to receive the aire more freely.*
D. *ſheweth the ſpring.*
E E *ſhew the laces and bands to tye about the patients body, that ſo the inſtrument may be ſtayed and kept faſt in his place.*

CHAP. LXI.

Of the hœmorrhoides and wartes of the necke of the wombe.

Like as in the fundament, ſo in the necke of the wombe there are hœmorrhoides, and as it were varicous veines, often times flowing with much blood, or with a red and ſtinking whayiſh humor. Some of theſe by reaſon of their redneſſe and great inequality as it were of knobs, are like unripe mulberries, and are called vulgarly *venæ morales*, that is to ſay, the veines or hœmorrhoides like unto mulberries; others are like unto grapes, and therefore are named *uvales*; other ſome are like unto warts, and therefore are called *venæ verrucales*; ſome appeare & ſhew themſelves with a great tumour, others are little and in the bottome of the neck of the wombe, others are in the ſide or edge thereof. *Achrochordon* is a kinde of wart with a callous bunch or knot, having a thin or ſlender root, and a greater head, like unto the knot of a rope, hanging by a ſmall thread; it is called of the Arabians, *verruca botoralis.*

The differences of the hœmorrhoides of the necke of the wombe.

What an *Acrochordon* is.

There is alſo another kinde of wart, which becauſe of his great roughneſſe and unequality is called *thymus*, as reſembling the flower of Thyme. All ſuch diſeaſes are exaſperated and made more grievous by any exerciſe, eſpecially by venereous acts: many times they have a certaine malignity, and an hidden virulency joyned with them, by occaſion whereof they are aggravated even by touching onely, becauſe they have their matter of a raging humour: therefore to theſe we may not rightly uſe a true, but onely the palliative cure, as they terme it: the Latines call them onely *ficus*, but the French men name them with an adjunct, St. *Fiacrius* figges.

What a *thymus* is.

St. *Fiacrius* figges.

CHAP.

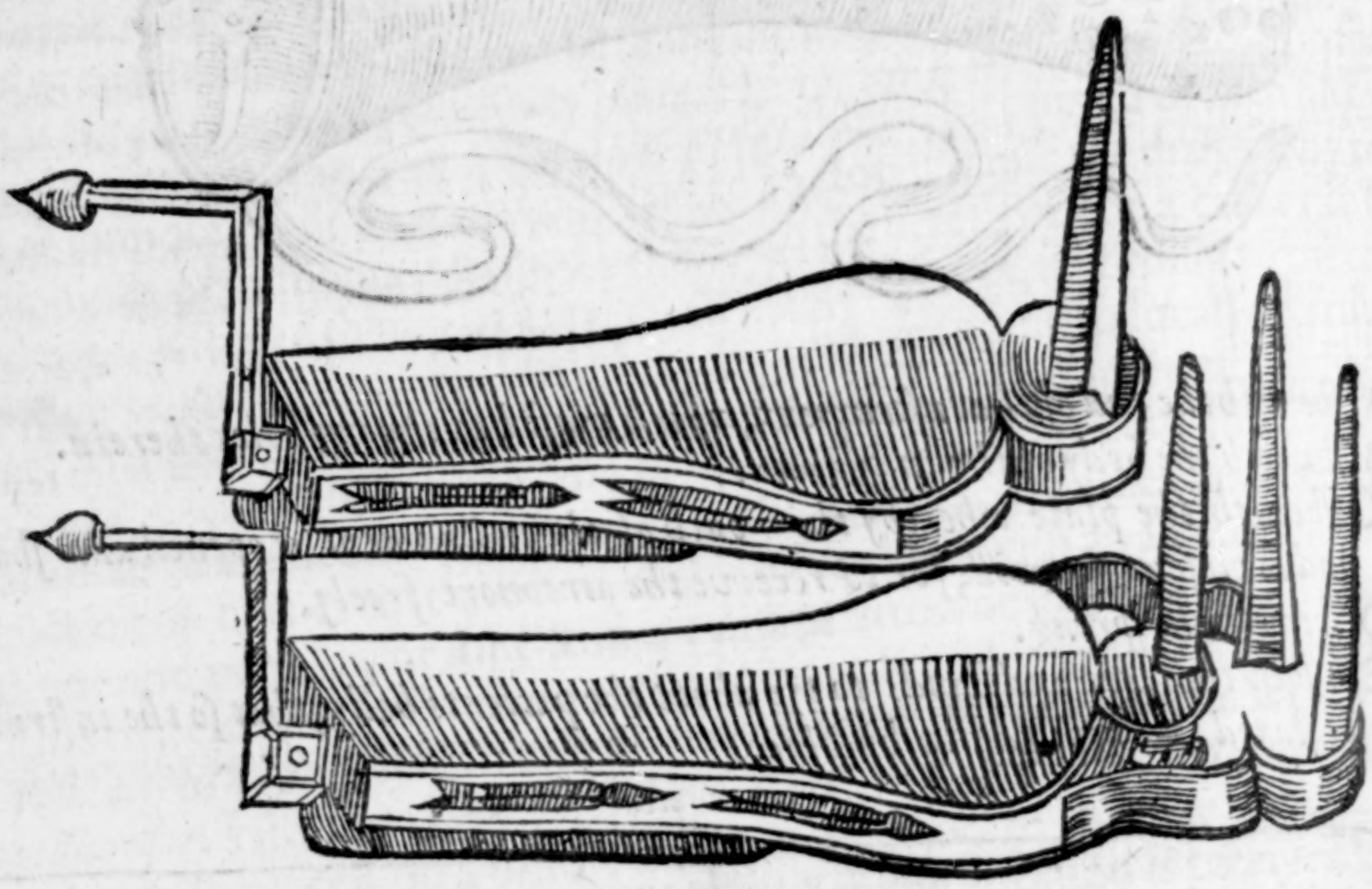
CHAP. LXII.

Of the cure of the Warts that are in the necke of the wombe.

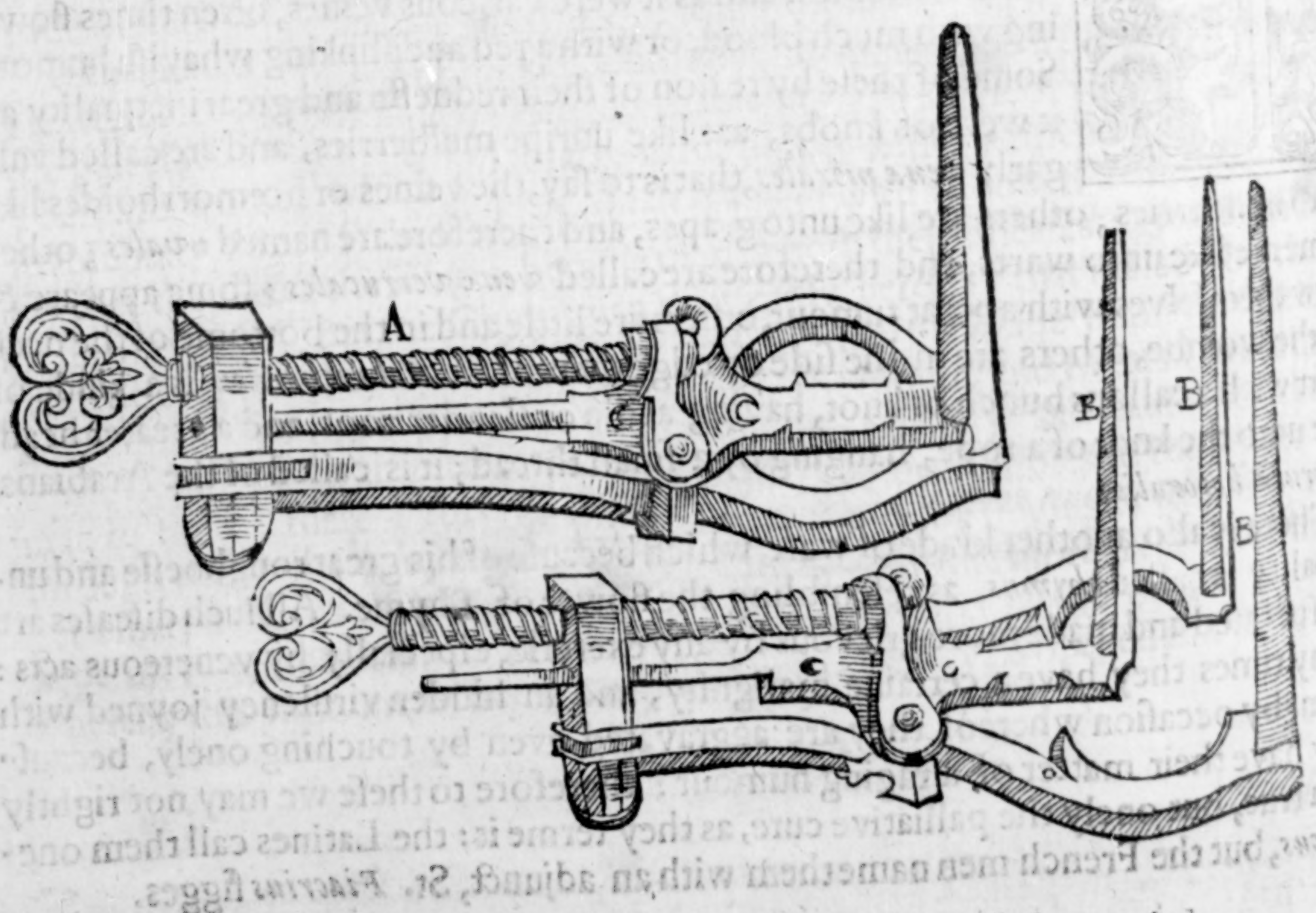
What warts of the womb muſt be bound and ſo cut off.

THe warts that grow in the necke of the wombe, if they bee not maligne are to bee tyed with a thread, and ſo cut off. Thoſe that lye hid more deep in the wombe, may be ſeene and cured by opening the *matrix* with a dilater made for the purpoſe.

Divers Specula matricis, *or Dilators for the inſpection of the matrix.*



An other forme of a dilater or Speculum matricis, *whereof the declaration followeth.*



A. *ſheweth the ſcrew which ſhutteth and openeth the dilater of the matrix.*

B.B. *ſhew the armes or branches of the inſtrument, which ought to be eight or nine fingers long.*

But theſe dilaters of the matrix ought to be of a bigneſſe correſpondent to the patients body; let them be put into the matrix when the woman is placed as wee have ſaid, when the child is to be drawne out of her body. That inſtrument is moſt meet to tye the warts, which wee have deſcribed in the relaxation of the palate or *Uvula*: let them bee tyed harder and harder every day untill they fall away. Therefore for the curing of warts there are three chiefe ſcopes, as bands, ſections, cauteries; and leſt they grow up againe, let oyle of vitrioll be dropped on the place, or *aqua fortis*, or ſome of the lye wherewith potentiall cauteries are made. This water following is moſt effectuall to conſume and waſte warts. ℞. *aq. plantag.* ℥ vi. *virid. æris*, ʒ ii. *alum. roch.* ʒ iii. *ſal. com.* ℥ ß. *vit. rom. & ſublim. an.* ʒ ß. beat them all together, and boile them; let one or two drops of this water be dropped on the grieved place, not touching any place elſe; but if there be an ulcer, it muſt be cured as I have ſhewed before. A certain man, ſtudious of phyſick, of late affirmed to me that oxe dung tempered with the leaves or powder of ſavine, would waſte the warts of the wombe, if it were applied thereto warme; which whether it be true or not, let experience, the miſtreſſe of things, be judge: verily *cantharides* put into unguents, will doe it, and (as it is likely) more effectually; for they will conſume the callouſneſſe which groweth betweene the toes or fingers. I have proved by experience that the warts that grow on the hands, may be cured by applying of purſlain beaten or ſtampt in its own juice. The leaves and flowers of marigolds doe certainely performe the ſelfe ſame thing.

Three ſcopes of the cure of warts in the wombe.

An effectuall water to conſume warts.

Unguents to conſume warts.

CHAP. LXIII.

Of chaps, and thoſe wrinkled and hard excreſcences which the greeks call Condylomata.

Chapps or fiſſures, are cleft and very long little ulcers, with paine very ſharpe and burning, by reaſon of the biting of an acride, ſalt and drying humour, making ſo great a contraction, and often times narrowneſſe in the fundament and the necke of the wombe, that ſcarcely the toppe of ones finger may be put into the orifice thereof, like unto pieces of leather or parchment, which are wrinkled and parched by holding of them to the fire. They riſe ſometimes in the mouth, ſo that the patient can neither ſpeake, eat, nor open his mouth, ſo that the Chirurgian is conſtrained to cut it. In the cure thereof, all ſharpe things are to be avoided, and thoſe which mollifie are to be uſed, and the grieved part or place is to be moiſtened with fomentations, liniments, cataplaſmes, emplaſters, and if the malady bee in the wombe, a dilater of the matrix or peſſary muſt be put thereinto very often, ſo to widen that which is over hard, & too much drawn together or narrow, and then the cleft little ulcers muſt be cicatrized.

What chaps are.

The cure.

Condylomata are certaine wrinkled and hard bunches, and as it were excreſcences of fleſh, riſing eſpecially in the wrinkled edges of the fundament and neck of the womb. Cooling and relaxing medicines ought to be uſed againſt this diſeaſe, ſuch as are oile of egges, and oyle of linſeed, take of each of them two ounces, beat them together a long time in a leaden mortar, and therewith anoint the grieved part; but if there be an inflammation, put thereto a little camphire.

What *condylomata* are.

The cure.

CHAP. LXIV.

Of the itching of the wombe.

IN women, eſpecially ſuch as are old, there often times commeth an itching in the neck of the wombe, which doth ſo trouble them with pain and a deſire to ſcratch, that it taketh away their ſleep. Not long ſince a woman asked my counſell, that was ſo troubled with this kind of malady, that ſhe was conſtrained to extinguiſh or ſtay the itching burning of her

What the itch of the womb is.

A hiſtory.

The cauſe of the itch.

The vertue of *unguent. enulat.*

her ſecret parts by ſprinkling cinders of fire, and rubbing them hard on the place, I counſelled her to take *agypt.* diſſolved in ſea-water or lye, & inject it into her ſecret parts with a ſyringe, and to wet ſtupes of flaxe in the ſame medicine, and put them up into the wombe, and ſo ſhe was cured. Many times this itch commeth in the fundament or teſticles of aged men, by reaſon of the gathering together or confluxe of ſalt flegme, which when it falleth into the eyes, it cauſeth the patient to have much adoe to refraine ſcratching: when this matter hath diſperſed it ſelfe into the whole habite of the body, it cauſeth a burning or itching ſcabbe, which muſt be cured by a cooling and a moiſtening diet, by phlebotomy and purging of the ſalt humour, by bathes and hornes applied, with ſcarification and anointing of the whole body with the unction following. ℞. *axung. porcin. recent.* ℔ i ß. *ſap. nig. vel gallici, ſalis nitri, aſſat. tartar. ſtaphiſag. an.* ℥ ß. *ſulph. viv.* ℥ i. *argent. viv.* ℥ ii. *acet. roſ. quart.* i. incorporate them all together, and make thereof a liniment according to art, and uſe it as is ſaid before: *unguentum enulatum cum mercurio* is thought to have great force, not without deſert, to aſſwage the itch, and dry the ſcab. Some uſe this that followeth. ℞. *alum. ſpum. nitr. ſulph. viv. an.* ʒ vi. *ſtaphiſ.* ℥ i. let them all be diſſolved in vinegar of roſes, adding thereto *butyr. recent. q. ſ.* make thereof a liniment for the forenamed uſe.

CHAP. LXV.

Of the relaxation of the great gut or inteſtine, which happeneth to women.

The cauſe.

The cure.

An effectuall remedy.

The differences and ſignes.

A hiſtory.

MAny women that have had great travell and ſtraines in child-birth, have the great inteſtine (called of the Latines *craſſum inteſtinum*) or gut, relaxed and ſlipped down; which kind of affect happeneth much to children, by reaſon of a phlegmaticke humour moiſtening the ſphincter muſcle of the fundament, and the two others called *levatores*. For the cure thereof, firſt of all the gut called *rectum inteſtinum* or the ſtraight gut, is to be fomented with a decoction of heating and reſolving herbes, as of ſage, roſemary, lavander, thyme, and ſuch like; and then of aſtringent things, as of roſes, myrtills, the rinds of pomegranats, cypreſſe nuts, galles, with a little alome, then it muſt be ſprinkled with the pouder of things that are aſtringent without biting, and laſt of all it is to be reſtored and gently thruſt into its place. That is ſuppoſed to bee an effectuall and ſingular remedy for this purpoſe, which is made of twelve red ſnailes put into a pot with ℥ ß. of alome, and as much of ſalt, and ſhaken up and down a long time, for ſo at length when they are dead there will remaine an humour, which muſt bee put upon cotton, and applied to the gut that is fallen downe. By the ſame cauſe (that is to ſay of painefull childe-birth in ſome women) there ariſeth a great ſwelling in the navell; for when the *peritonæum* is relaxed or broken, ſometimes the Kall, and ſometimes the guts ſlippe out: many times flatulencies come thither: the cauſe, as I now ſhewed, is over great ſtraining or ſtretching of the belly, by a great burthen carried in the wombe, and great travaile in childe-birth: if the fallen downe guts make that tumour, paine joyned together with that tumour doth vexe the patient, and if it be preſſed you may heare the noiſe of the guts going backe againe: if it be the Kall, then the tumour is ſoft, and almoſt without pain, neither can you heare any noiſe by compreſſion: if it be winde, the tumour is looſe and ſoft, yet it is ſuch as will yeeld to the preſſing of the finger with ſome ſound, and will ſoone returne againe: if the tumour be great, it cannot be cured unleſſe the *peritonæum* bee cut, as it is ſaid in the cure of ruptures. In the church-porches of *Paris* I have ſeene begger-women, who by the falling downe of the guts, have had ſuch tumours as big as a bowle, who notwithſtanding could goe, and doe all other things as if they had beene ſound and in perfect health: I think it was becauſe the *fæces* or excrements, by reaſon of the greatneſſe of the tumor, and the bigneſſe or wideneſſe of the inteſtines, had a free paſſage in and out.

Chap. LXVI.

Of the relaxation of the navell in children.

OFten times in children newly borne, the navell ſwelleth as bigge as an egg, becauſe it hath not bin well cut or bound, or becauſe the whayiſh humours are flowed thither, or becauſe that part hath extended it ſelfe too much by crying, by reaſon of the paines of the fretting of the childes guts, many times the childe bringeth that tumour joined with an abſceſſe with him from his mother wombe: but let not the Chirurgian aſſay to open that abſceſſe, for if it be opened, the guts come out through the inciſion, as I have ſeene in many, and eſpecially in a child of my Lord *Martigues*; for when *Peter* of the Rocke, the Chirurgian, opened an abſceſſe that was in it, the bowels ranne out at the inciſion, and the infant died; and it wanted but little that the Gentlemen of my Lords retinue that were there, had ſtrangled the Chirurgian. Therefore when *John Gromontius* the Carver deſired me, and requeſted mee of late that I would doe the like in his ſonne, I refuſed to doe it, becauſe it was in danger of its life by it already, and in three daies after the abſceſſe broke, and the bowells guſhed out, and the childe died.

An abſceſſe not to be opened.

A hiſtory.

Chap. LXVII.

Of the paine that children have in breeding of teeth.

CHildren are greatly vexed with their teeth, which cauſe great paine when they begin to break, as it were, out of their ſhell or ſheath, and begin to come forth, the gummes being broken, which for the moſt part happeneth about the ſeventh month of the childs age. This pain commeth with itching and ſcratching of the gummes, an inflammation, fluxe of the belly, whereof many times commeth a feaver, falling of the hair, a convulſion, and at length death. The cauſe of the paine is the ſolution of the continuity of the gummes by the comming forth of the teeth. The ſignes of that pain is an unaccuſtomed burning, or heat of the childes mouth, which may bee perceived by the nurſe that giveth it ſucke, a ſwelling of the gummes and cheekes, and the childes being more wayward and crying than it was wont, and it will put its fingers to its mouth, and it will rubbe them on its gummes as though it were about to ſcratch, and it ſlavereth much. That the Phyſitian may remedy this, hee muſt cure the nurſe as if ſhe had the feaver, and ſhee muſt not ſuffer the childe to ſucke ſo often, but make him coole and moiſt when hee thirſteth by giving him at certaine times *ſyrupus alexandrinus*, *ſyrup. de limonibus*, or the ſyrupe of pomegranats with boiled water; yet the childe muſt not hold thoſe things that are actually cold long in his mouth, for ſuch by binding the gums, doe in ſome ſort ſtay the teeth that are newly comming forth; but things that lenifie and mollifie are rather to bee uſed, that is to ſay, ſuch things as doe by little and little relaxe the looſe fleſh of the gummes, and alſo aſſwage the paine. Therefore the nurſe ſhall often times rubbe the childs gummes with her fingers, anointed or beſmeared with oyle of ſweet almonds, freſh butter, hony, ſugar, mucilage of the ſeeds of *pſilium*, or of the ſeeds of marſh mallowes extracted in the water of pellitory of the wall. Some thinke that the braine of a hare, or of a ſucking pig roſted or ſodden, through a ſecret property, are effectuall for the ſame: and on the outſide ſhall be applied a cataplaſme of barly meale, milke, oyle of roſes, and the yelkes of egges. Alſo a ſticke of liquorice ſhaven and bruiſed and anointed with hony, or any of the forenamed ſyrupes, and often rubbed in the mouth or on the gummes, is likewiſe profitable: ſo is alſo any toy for the childe to play withall, wherein a wolves tooth is ſet, for this by ſcratching doth aſſwage the painfull itching, and rarifie the gummes, and in ſome weareth them that the teeth appeare the ſooner. But many times it happeneth that

The time of breeding of the teeth.

The cauſe of the paine in breeding teeth.

The ſignes.

The cure.

What power ſcratching of the gums hath to aſſwage the pain of them.

all theſe and ſuch like medicines profit nothing at all, by reaſon of the contumacy of the gums, by hardneſſe or the weakneſſe of the childes nature: therefore in ſuch a cauſe, before the forenamed mortall accidents come, I would perſwade the Chirurgian to open the gummes in ſuch places as the teeth bunch out with a little ſwelling, with a knife or lancet, ſo breaking and opening a way for them, notwithſtanding that a little fluxe of blood will follow by the tenſion of the gummes: of which kind of remedy I have with proſperous and happy ſucceſſe made tryall in ſome of mine owne children, in the preſence of *Feureus*, *Altinus*, and *Cortinus*, Doctors of Phyſick, and *Guillemeau* the Kings Chirurgian, which is much better and more ſafe than to doe as ſome nurſes doe, who taught onely by the inſtinct of nature, with their nailes and ſcratching, breake and teare, or rent the childrens gummes. The Duke of *Nevers* had a ſonne of eight moneths old, which died of late, and when wee, with the Phyſitians that were preſent, diligently ſought for the cauſe of his death, we could impute it unto nothing elſe, than to the contumacious hardneſſe of the gums, which was greater than was convenient for a childe of that age; for therefore the teeth could not breake forth, nor make a paſſage for themſelves to come forth: of which our judgement this was the tryall, that when we cut his gummes with a knife, we found all his teeth appearing as it were in an array, ready to come forth, which if it had bin done when he lived, doubtleſſe he might have beene preſerved.

A hiſtory.

The End of the twenty fourth Booke.

OF MONSTERS AND PRODIGIES.

The Twenty Fifth Book.

The Preface.

Wee call Monſters, what things ſoever are brought forth contrary to the common decree and order of nature. So wee terme that infant monſtrous, which is borne with one arme alone, or with two heads. But we define Prodigies, thoſe things which happen contrary to the whole courſe of nature, that is, altogether differing and diſſenting from nature: as, if a woman ſhould bee delivered of a Snake, or a Dogge. Of the firſt ſort are thought all thoſe, in which any of thoſe things, which ought, and are accuſtomed to bee, according to nature, is wanting, or doth abound, is changed, worne, covered or defended, hurt, or not put in his right place: for ſomtimes ſome are born with more fingers than they ſhould, otherſome but with one finger: ſome with thoſe parts devided which ſhould be joyned, others with thoſe parts joyned which ſhould bee devided: ſome are borne with the privityes of both ſexes, male and female. And Ariſtotle ſaw a Goate with a horne upon her knee. No living creature was ever borne which wanted the Heart, but ſome have beene ſeene wanting the Spleene, others with two Spleenes, and ſome wanting one of the Reines. And none have bin known to have wanted the whole Liver, although ſome have bin found that had it not perfect and whole: and there have beene thoſe which wanted the Gall, when by nature they ſhould have had it: and beſides, it hath beene ſeene that the Liver, contrary to his naturall ſite, hath lien on the left ſide, and the Spleene on the right. Some women alſo have had their privities cloſed, and not perforated, the membranous obſtacle, which they call the Hymen, *hindering. And men are ſometimes borne with their fundaments, eares, noſes, and the reſt of the paſſages ſhut, and are accounted monſtrous, nature erring from its entended ſcope. But to conclude, thoſe Monſters are thought to portend ſome ill, which are much differing from their nature.*

What a monſter is.

What a prodigie is.

Lib. 4. gen. anim. cap. 4.

CHAP. I.

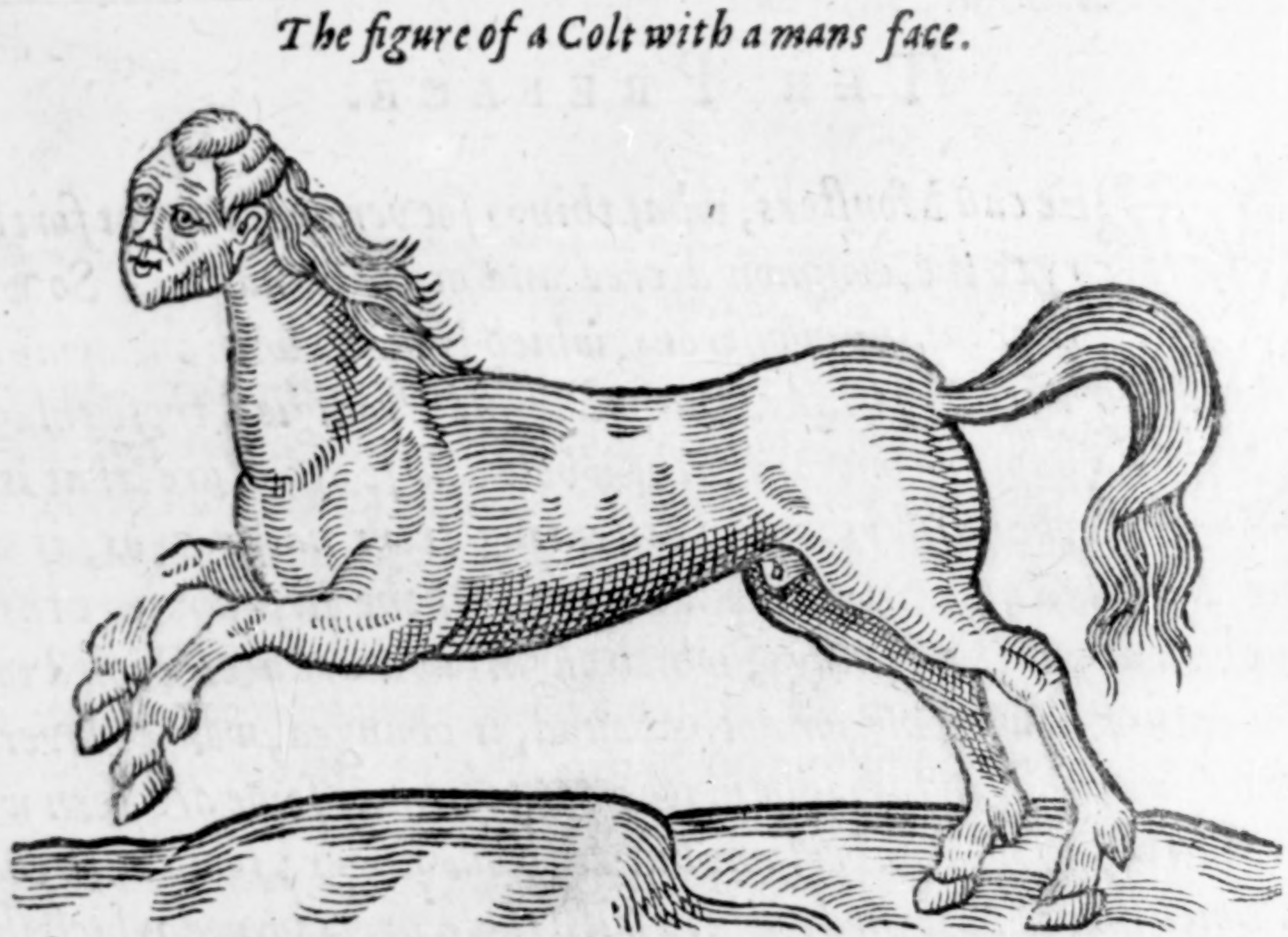
Of the cauſe of Monſters; and firſt of thoſe Monſters which appeare for the glory of God, and the puniſhent of mens wickedneſſe.

THere are reckoned up many cauſes of monſters; the firſt whereof is the glory of God, that his immenſe power may be manifeſted to thoſe which are ignorant of it, by the ſending of thoſe things which happen contrary to nature: for thus our Saviour Chriſt anſwered the Diſciples (asking whether he or his parents had offended, who, being born blind, received his ſight from him) that neither he nor his parents had committed any fault ſo great, but this to have happened onely that the glory and majeſty of God ſhould be divulged by that miracle, and ſuch great workes.

Another cauſe is, that God may either puniſh mens wickedneſſe, or ſhew ſignes of puniſhment at hand, becauſe parents ſometimes lye and joine themſelves together without law and meaſure, or luxuriouſly and beaſtly, or at ſuch times as they ought to forbeare by the command of God and the Church, ſuch monſtrous, horrid and unnaturall births doe happen.

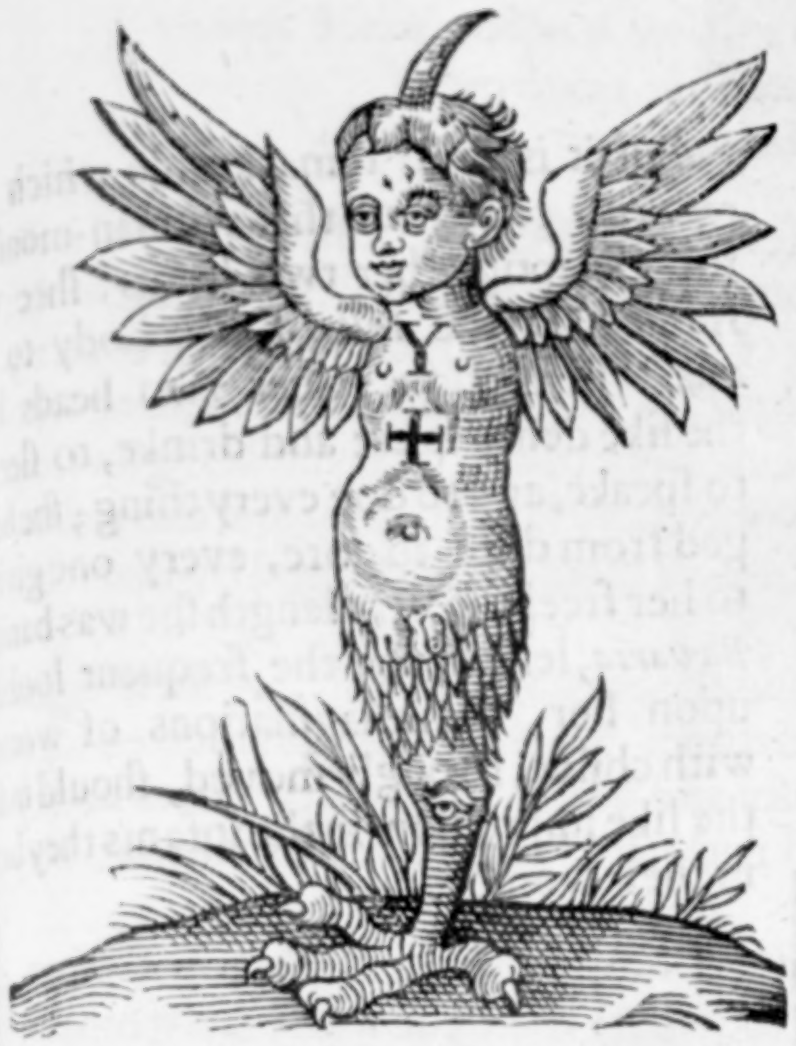
At *Verona Anno Dom.* 1254. a mare foaled a colt, with the perfect face of a man, but all the reſt of the body like an horſe: a little after that, the warre betweene the *Florentines* and *Piſans* began, by which all *Italy* was in a combuſtion.

The figure of a Colt with a mans face.



About the time that Pope *Julius* the ſecond raiſed up all *Italy*, and the greateſt part of Chriſtendome, againſt *Lewis* the twelfth the King of *France*, in the yeere of our Lord 1512. (in which yeere, upon Eaſter day, neere *Ravenna* was fought that mortall battell, in which the Popes forces were overthrowne) a monſter was borne in *Ravenna*, having a horne upon the crowne of his head, and beſides, two wings, and one foot alone, moſt like to the feet of birds of prey, and in the knee thereof an eye, the privities of male and female, the reſt of the body like a man, as you may ſee by the following figure.

The figure of a winged Monſter.



The third cauſe is, an abundance of ſeed & overflowing matter. The fourth, the ſame in too little quantity, and deficient. The fift, the force and efficacy of imagination. The ſixt, the ſtraightneſſe of the wombe. The ſeaventh, the diſorderly ſite of the party with childe, and the poſition of the parts of the body. The eighth, a fall, ſtraine or ſtroake, eſpecially upon the belly of a woman with child. The ninth, hereditary diſeaſes, or affects by any other accident. The tenth, the confuſion and mingling together of the ſeed. The eleventh, the craft and wickedneſſe of the divell. There are ſome others which are accounted for monſters, becauſe they have their originall or eſſence full of admiration, or doe aſſume a certaine prodigious forme by the craft of ſome begging companions; therefore we will ſpeak briefly of them in their place in this our treatiſe of monſters.

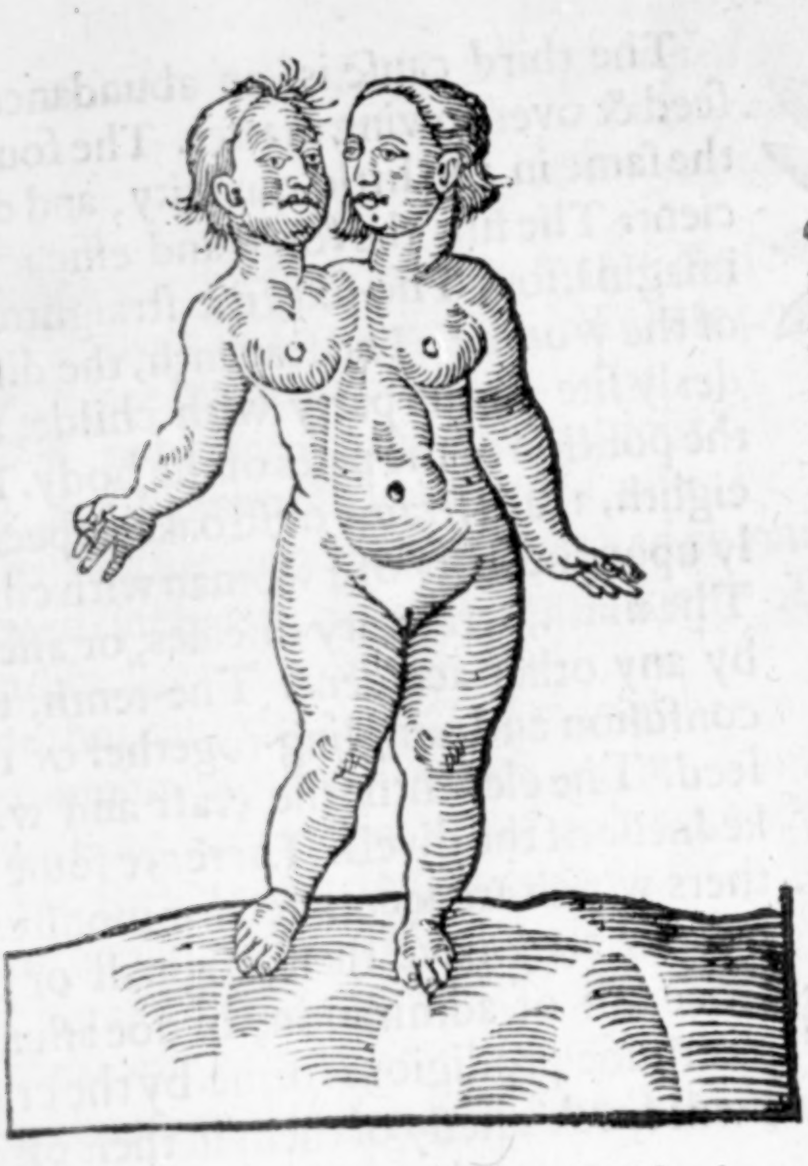
Chap. II.

Of monſters cauſed by too great abundance of ſeed.

Seeing wee have already handled the two former and truely finall cauſes of monſters, we muſt now come to thoſe which are the matereall, corporeall, and efficient cauſes, taking our beginning from that we call the too great abundance of the matter of ſeed. It is the opinion of thoſe Philoſophers which have written of monſters, that if at any time a creature bearing one at once, as man, ſhall caſt forth more ſeed in copulation than is neceſſary to the generation of one body, it cannot be that onely one ſhould bee begot of all that; therefore from thence either two or more muſt ariſe: whereby it commeth to paſſe, that theſe are rather judged wonders, becauſe they happen ſeldome, and contrary to common cuſtome. Superfluous parts happen by the ſame cauſe, that twinnes, and many at one birth, contrary to natures courſe, doe chance, that is, by a larger effuſion of ſeed than is required for the framing of that part, that ſo it exceeds either in number or elſe in greatneſſe. So *Auſtin* tells that in his time in the Eaſt an infant was borne, having all the parts from the belly upwards double, but from thence downewards ſingle and ſimple: for it had two heads, foure eyes, two breaſts, foure hands, in all the reſt like to another child, and it lived a little while. *Cælius Rhodiginus* ſaith he ſaw two monſters in *Italy*, the one male, the other female, handſomly & neatly made through all their bodies, except their heads, which were double; the male died within a few daies after it was borne; but the female (whoſe ſhape is here delineated) lived 20. five yeers, which is contrary to the common cuſtome of monſters; for they for the moſt part are very ſhort lived, becauſe they both live and are born, as it were, againſt natures conſent; to which may be added, they doe not love themſelves, by reaſon they are made a ſcorne to others, and by that meanes lead a hated life.

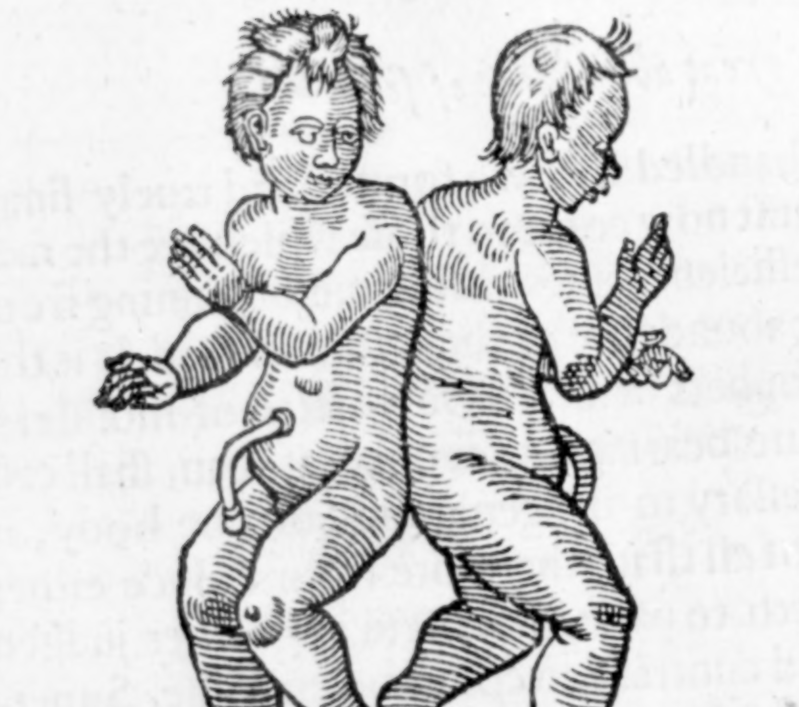
Monſters are ſeldome long lived.

The effigies of a maide with two heads.



But it is moſt remarkeable which *Lycoſthenes* telleth of this woman-monſter, for excepting her two heads, ſhee was framed in the reſt of her body to an exact perfection: her two heads had the like deſire to eat and drinke, to ſleepe, to ſpeake, and to doe every thing; ſhe begged from dore to dore, every one giving to her freely. Yet at length ſhe was baniſht *Bavaria*, leſt that by the frequent looking upon her, the imaginations of women with childe, ſtrongly moved, ſhould make the like impreſſion in the infants they bare in their wombes.

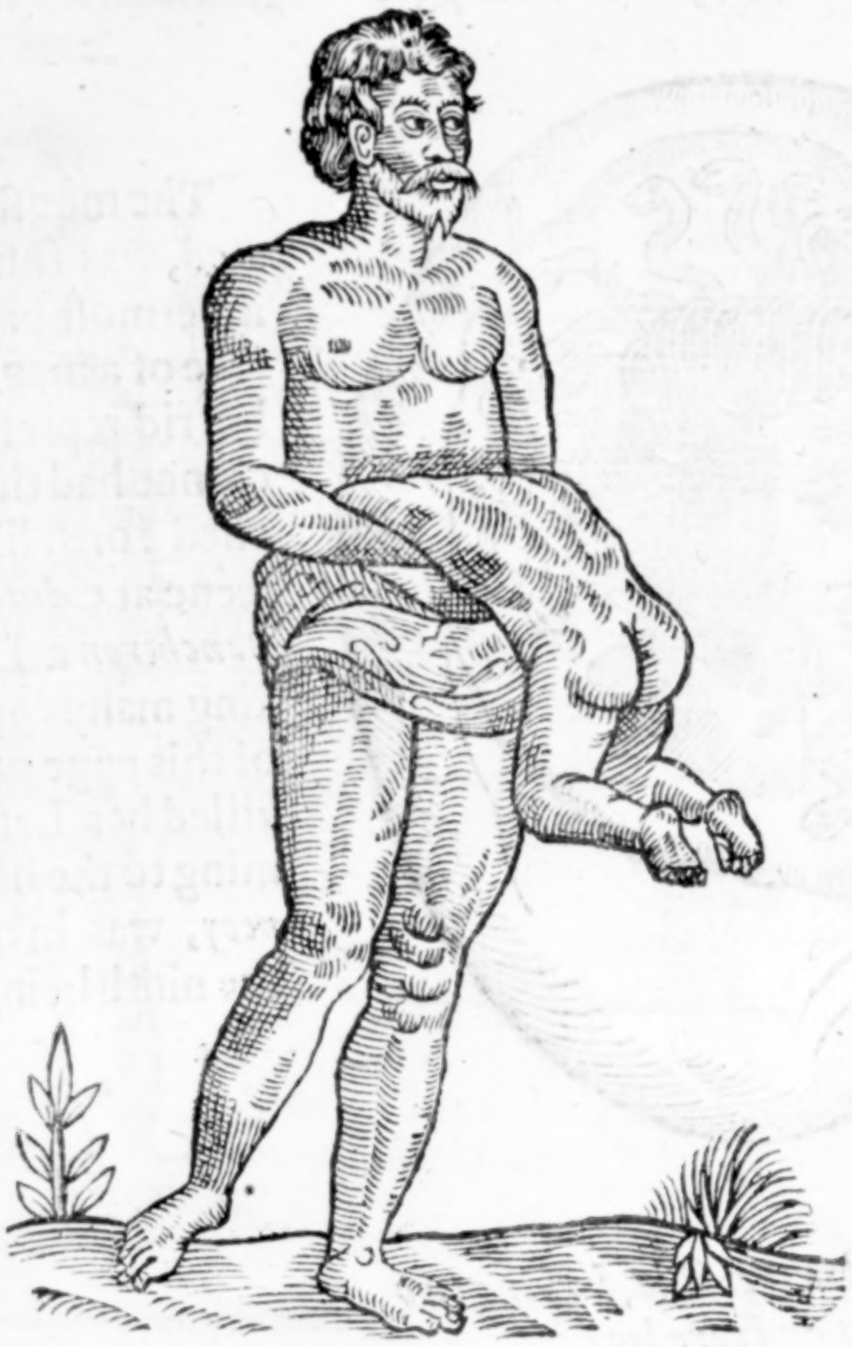
The effigies of two girles whoſe backes grew together.



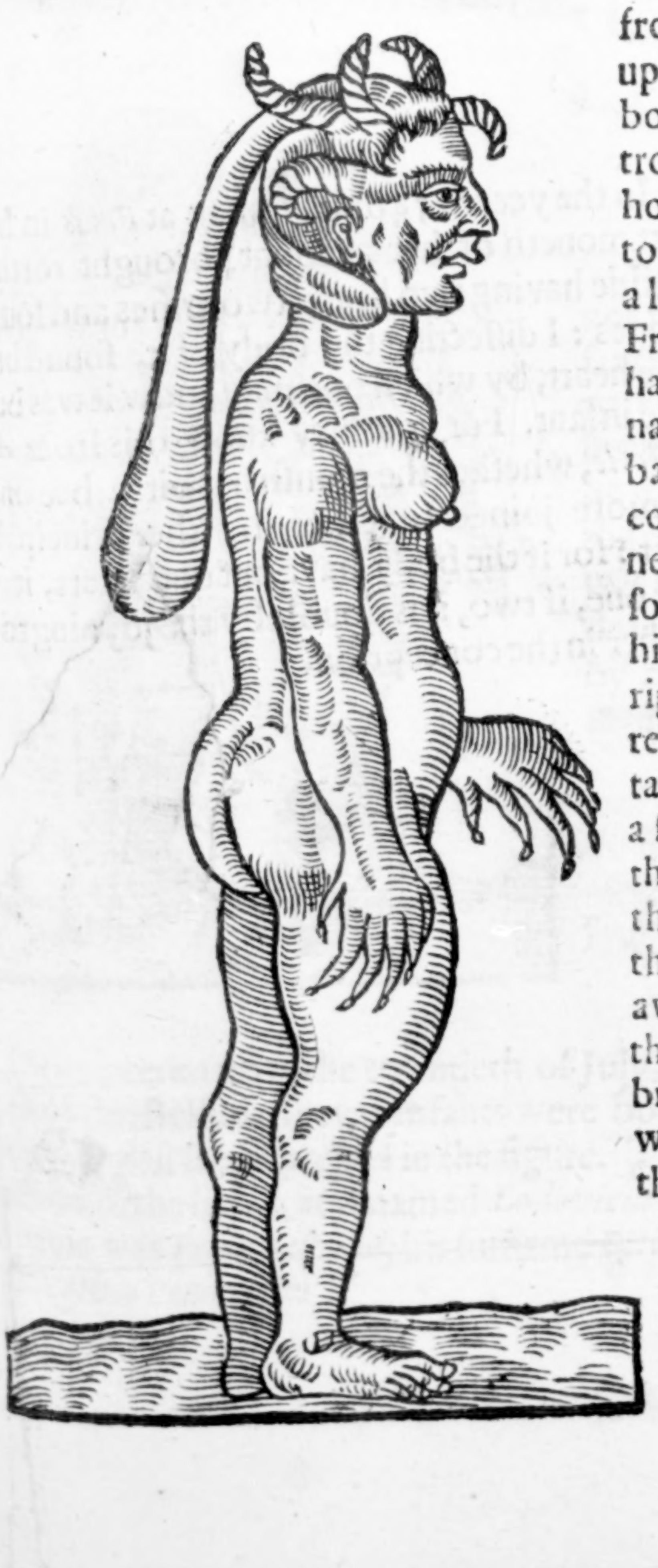
In the yeere of our Lord 1475. at *Verona* in *Italy*, two Girles were borne with their backes ſticking together from the lower part of the ſhoulders unto the very buttockes. The novelty and ſtrangeneſſe of the thing moved their parents, being but poor, to carry them through all the chiefe townes in *Italy* to get mony of all ſuch as came to ſee them.

In the yeere 1530. there was a man to bee ſeene at *Paris*, out of whoſe belly another, perfect in all his members except his head, hanged forth as if he had been grafted there. The man was forty yeeres old, and hee carried the other implanted or growing out of him, in his armes, with ſuch admiration to the beholders, that many ranne very earneſtly to ſee him.

The figure of a man with another growing out of him.

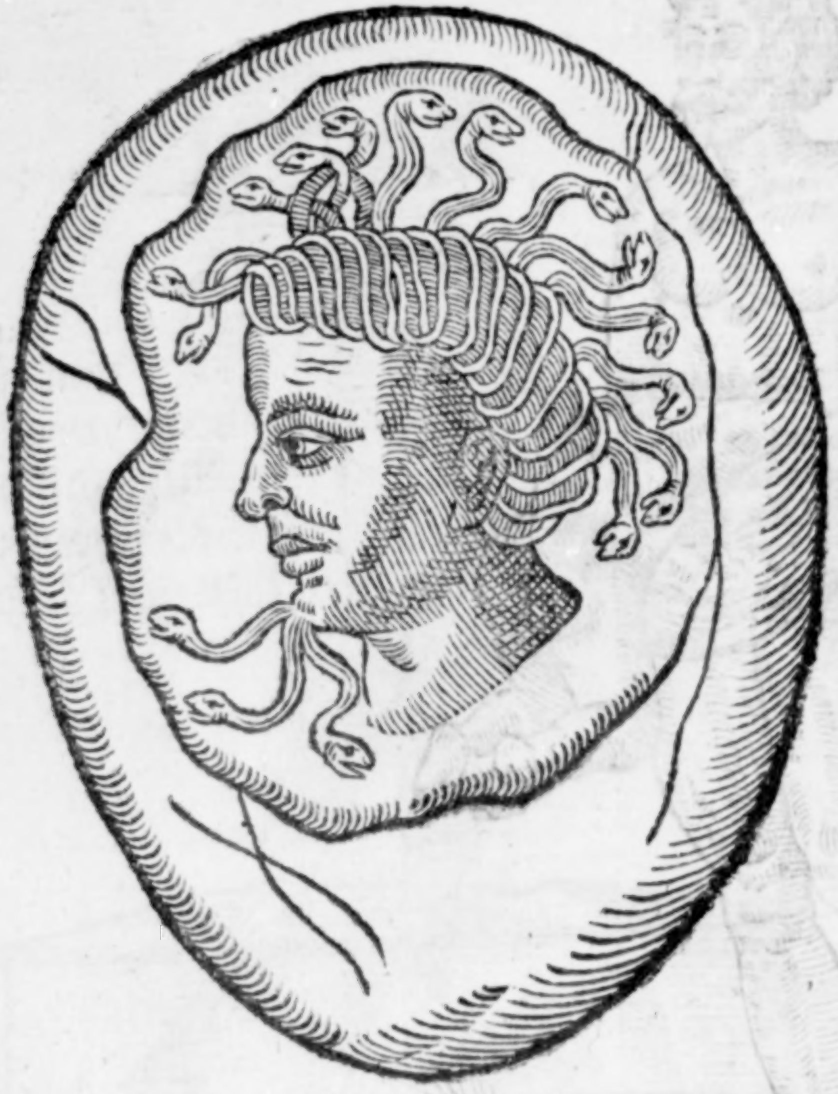


The effigies of the horned or hooded monſter.



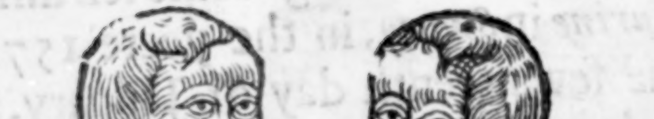
At *Quiers*, a ſmall village ſome ten miles from *Turine* in *Savoy*, in the yeere 1578. upon the ſeventeenth day of January, about eight a clocke at night, an honeſt matron brought forth a childe having five hornes, like to Rams hornes, ſet oppoſite to one another upon his head: he had alſo a long piece of fleſh, like in ſome ſort to a French-hood which women uſed to wear, hanging downe from his forehead by the nape of his necke almoſt the length of his backe: two other pieces of fleſh, like the collar of a ſhirt, were wrapped about his necke: the fingers ends of both his hands ſomewhat reſembled a Haukes talons, and his knees ſeemed to be in his hammes: the right leg and the right foot were of a very red colour; the reſt of the body was of a tawny colour: it is ſaid he gave ſo terrible a ſcritch when he was brought forth, that the Midwives, and the reſt of the women that were at her labour, were ſo frighted that they preſently left the houſe and ran away. When the Duke of *Savoy* heard of this monſter, he commanded it ſhould be brought to him, which performed, one would hardly think what various cenſures the Courtiers gave of it.

The ſhape of a monſter found in an egge.



The monſter you ſee here delineated, was found in the middle and innermoſt part of an egge, with the face of a man, but haires yeelding a horrid repreſentation of ſnakes; the chinne had three other ſnakes ſtretched forth like a beard. It was firſt ſeene at *Autun*, at the houſe of one *Bancheron* a Lawyer, a maide breaking many eggs to butter: the white of this egge given a Cat, preſently killed her. Laſtly, this monſter comming to the hands of the Baron *Senecy*, was brought to King *Charles* the ninth being then at *Metz*.

The effigies of a monſtrous childe, having two heads, two armes & foure legs.



In the yeere 1546. a woman at *Paris* in her ſixt moneth of her account, brought forth a childe having two heads, two armes and foure legges: I diſſecting the body of it, found but one heart, by which one may know it was but one infant. For you may know this from *Ariſtotle*, whether the monſtrous birth bee one or more joined together, by the principall part: for if the body have but one heart, it is but one, if two, it is double by the joyning together in the conception.

Ariſt. in problem.

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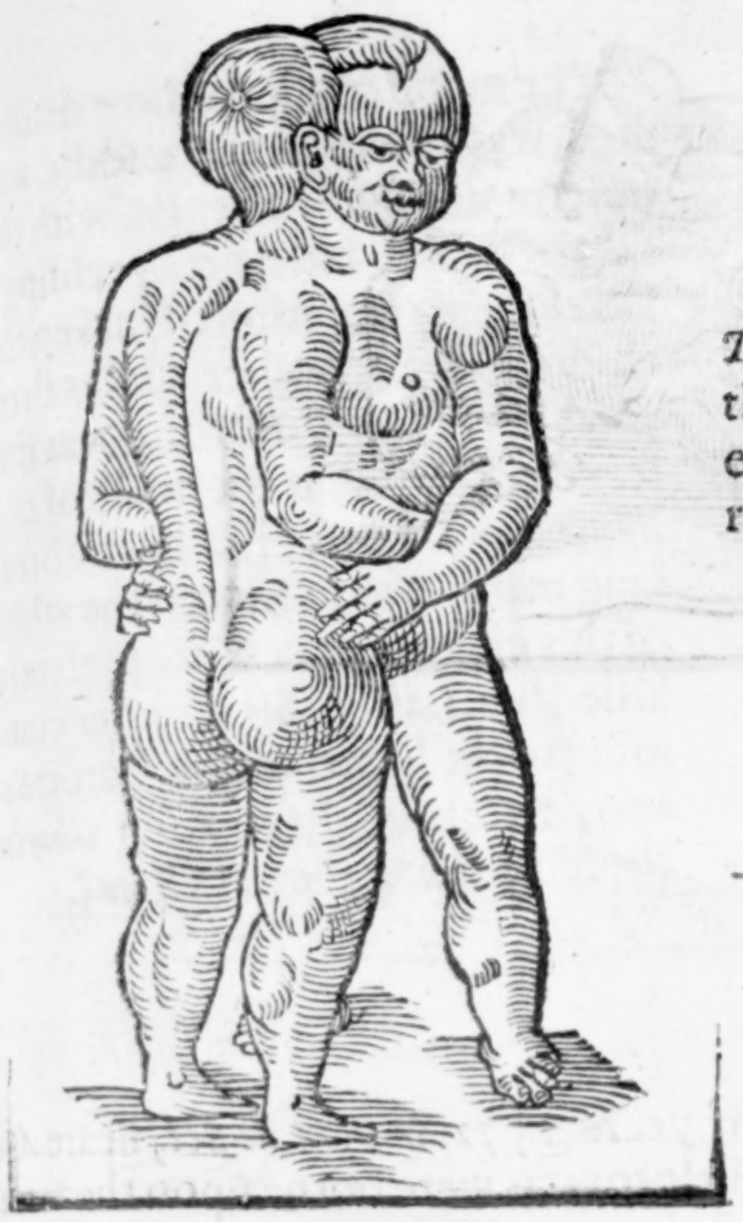
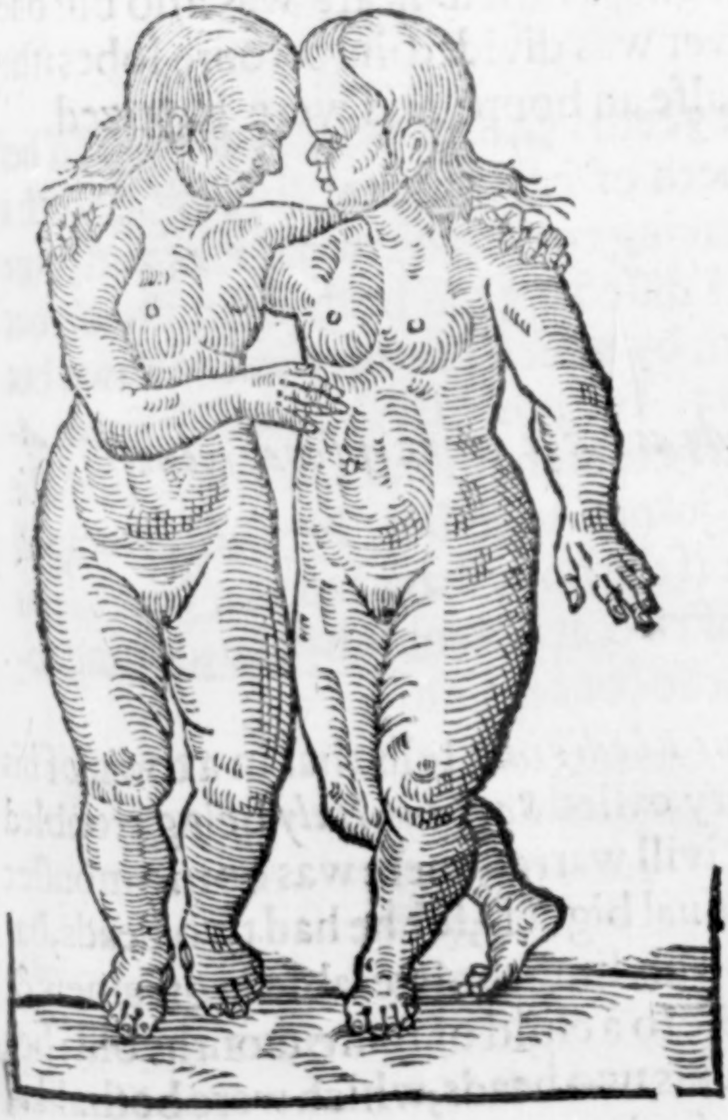
The portraiture of Twinnes joyned together with one head.



In the yeere 1569. a certaine woman of *Towers* was delivered of twinnes joyned together with one head, and mutually embracing each other. *Renatus Ciretus* the famous Chirurgian of thoſe parts, ſent mee their *Sceleton.*

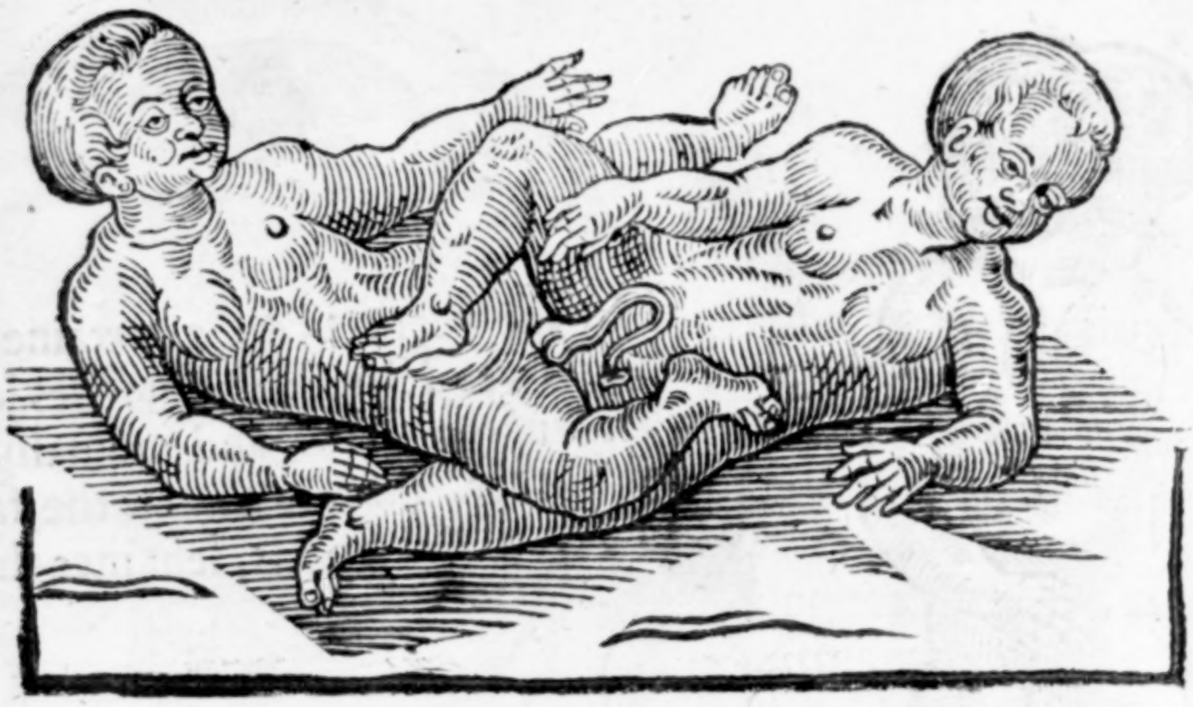
The effigies of two girles, being Twinnes, joyned together by their fore-heads.



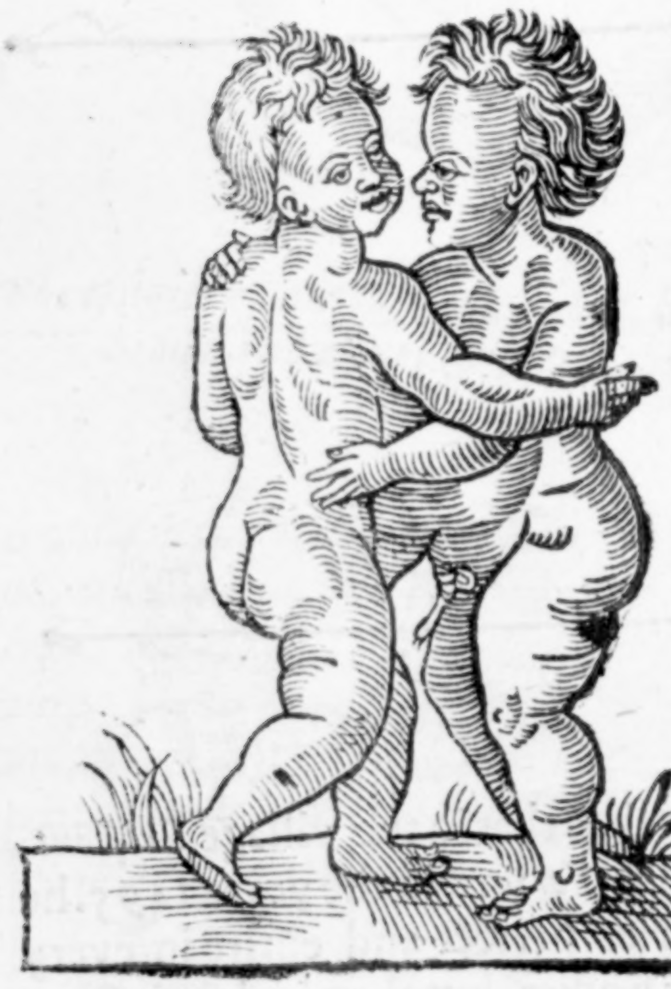
Munſter writes that in the village *Briſtant*, not farre from *Wormes*, in the yeere 1495. he ſaw two Girles perfect and entire in every part of their bodies, but they had their foreheads ſo joined together that they could not be parted or ſevered by any art: they lived together ten yeeres; then the one dying, it was needfull to ſeparate the living from the dead: but ſhe did not long out-live her ſiſter, by reaſon of the malignity of the wound made in parting them aſunder.

In the yeere 1570. the twentieth of July, at *Paris*, in the ſtreet *Gravilliers*, at the ſigne of the Bell, theſe two infants were borne, differing in ſexe, with that ſhape of body that you ſee expreſſed in the figure. They were baptized in the Church of St. *Nicholas* of the fields, and named *Ludovicus* and *Ludovica*, their father was a Maſon, his name was *Peter German*, his ſurname *Petit Dieu* (i) little-God, his mothers name was *Mathea Petronilla.*

The ſhape of the infants lately borne at Paris.

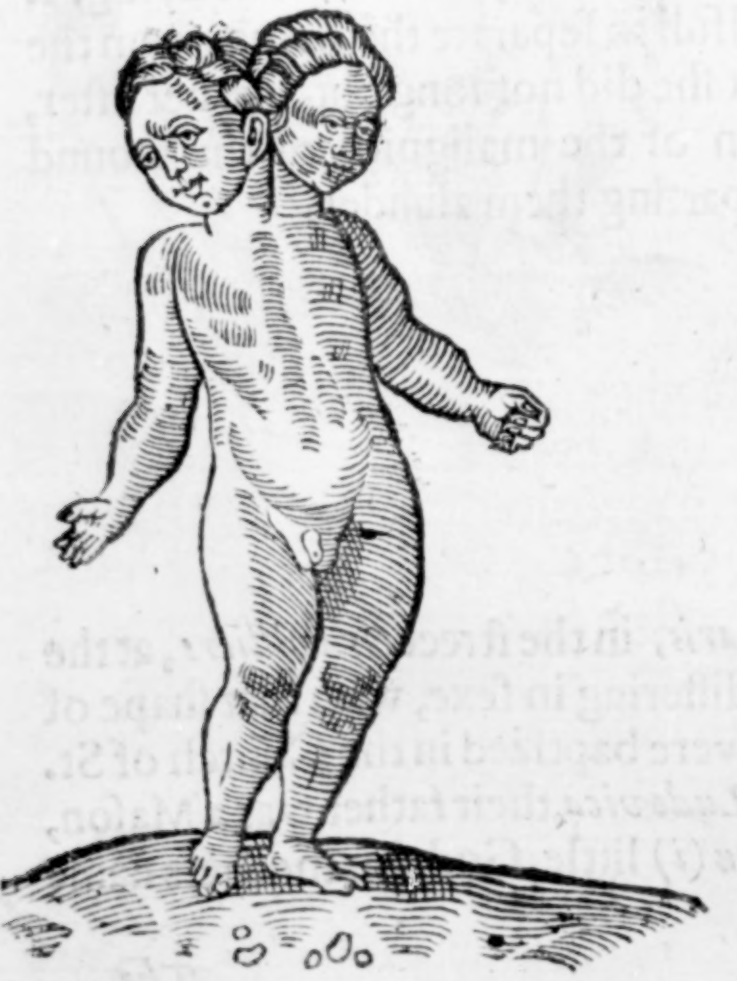


The figure of two girles joyned together in their breaſts, and belly.



In the yeere 1572. in *Pont de See*, neare *Angers* a little towne, were borne upon the tenth day of *July*, two girles, perfect in their limbs, but that they had but foure fingers apiece on their left hands: they clave together in their fore parts, from their chin to the navell, which was but one, as their heart was alſo but one; their liver was divided into foure lobes: they lived halfe an houre, and were baptized.

The figure of a child with two heads, and the body as bigge as one of foure moneths old.



Var. lect. lib. 24. cap. 3.

Cælius Rhodiginus tells that in a town of his country called *SarZano*, *Italy* being troubled with civill warres, there was born a monſter of unuſual bigneſs; for he had two heads, having all his limbs anſwerable in greatneſs & tallneſſe to a child of foure months old: between his two heads, which were both alike, at the ſetting on of the ſhoulder, it had a third hand put forth, which did not exceed the eares in length, for it was not all ſeen: it was born the 5. of the Ides of *March* 1514.

The

The figure of one
as man

The figure of a man
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In the yeere 157
you goe from *Carn*
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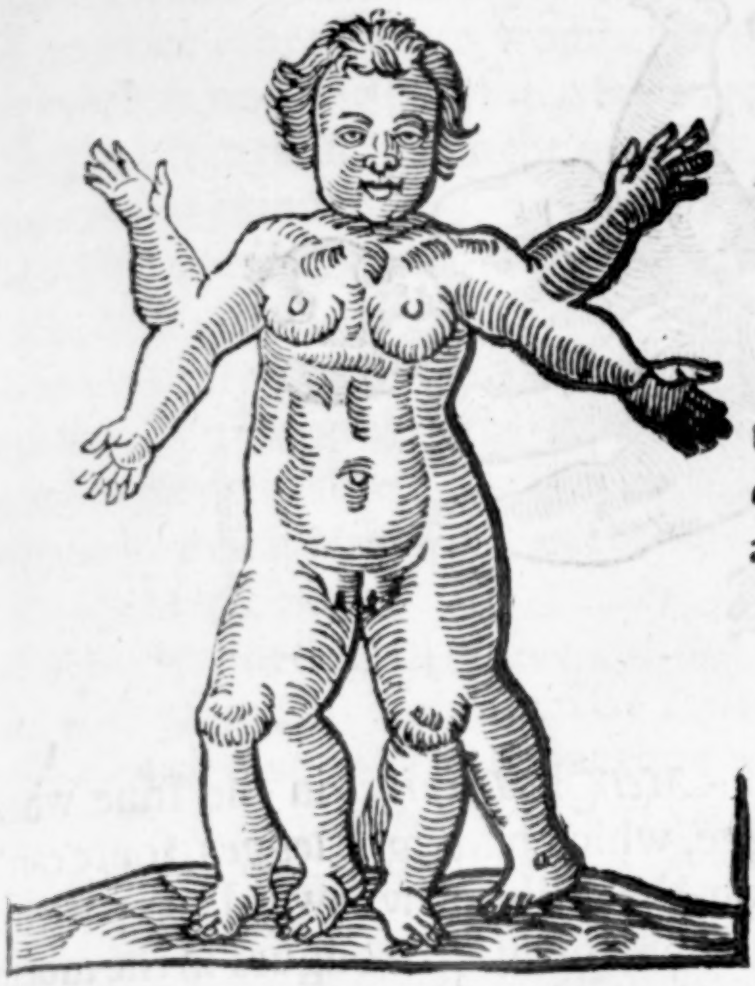
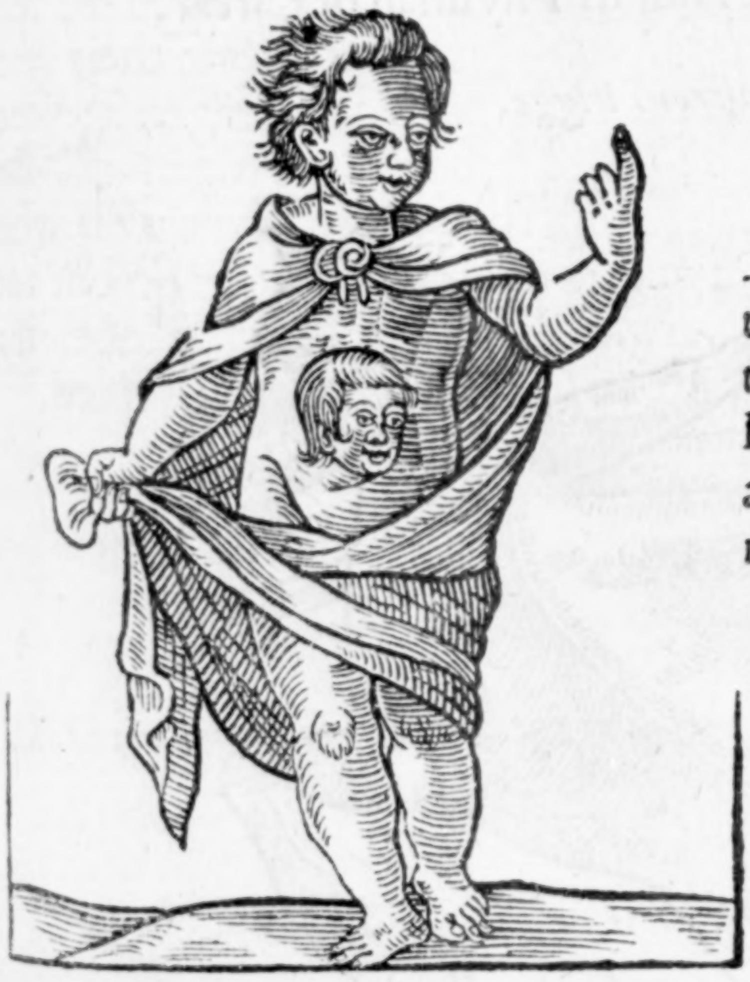
whoſe ſhape you ſee
but of one onely ſe

The figure of one with foure legges and as many armes.



Jovianus Pontanus tells in the yeere 1529. the ninth day of *January*, there was a man childe borne in *Germany*, having foure armes and as many legges.

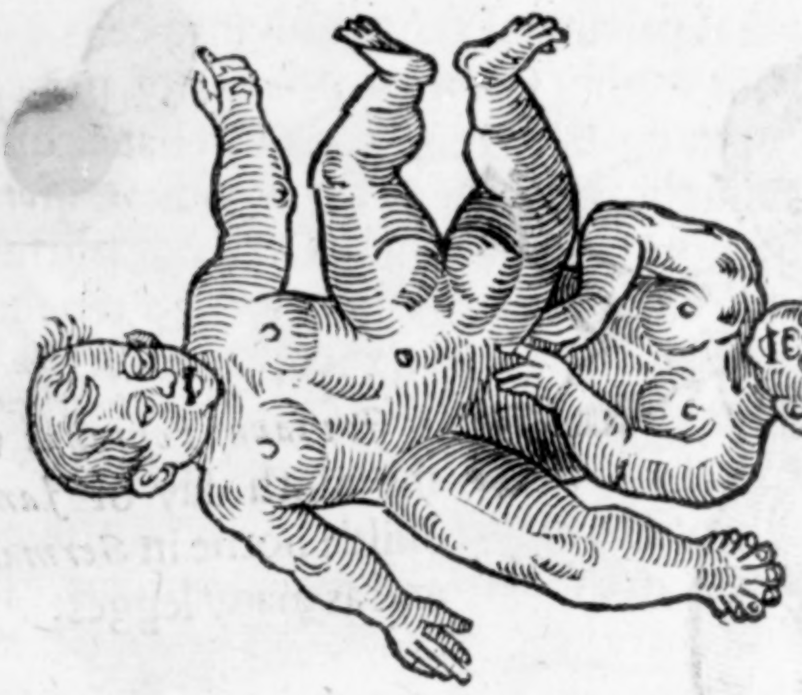
The figure of a man out of whoſe belly another head ſhewed it ſelfe.



In the yeere that *Francis* the firſt King of *France* entered into league with the *Swiſſes*, there was borne a monſter in *Germany*, out of the midſt of whoſe belly there ſtood a great head; it came to mans age, and this lower, and as it were inſerted head, was nouriſhed as much as the true and upper head.

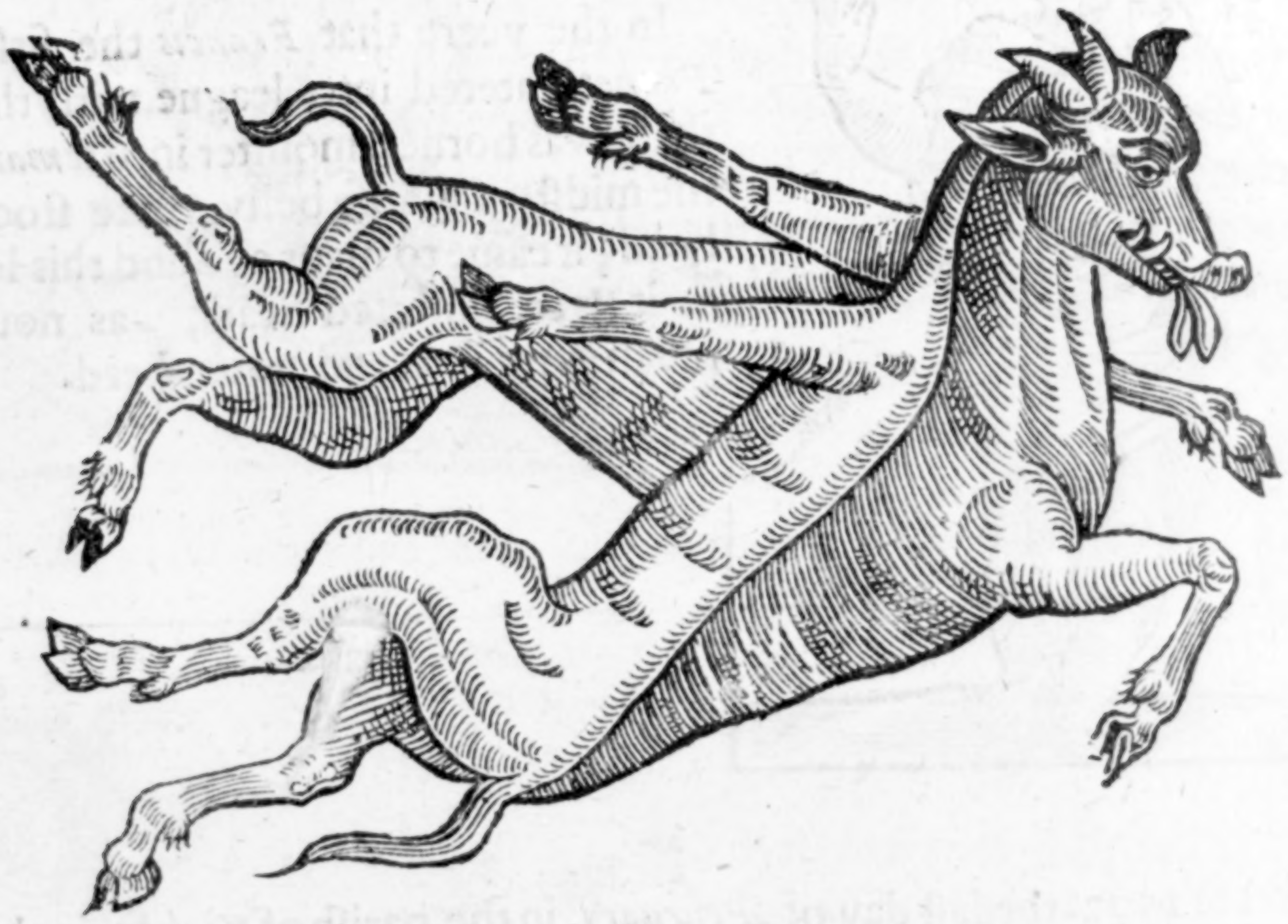
In the yeere 1572. the laſt day of *February*, in the pariſh of *Viaban*, in the way as you goe from *Carnuta* to *Paris*, in a ſmall village called *Bordes*, one called *Cypriana Giranda* the, wife of *James Merchant* a husbandman, brought forth this monſter whoſe ſhape you ſee here delineated, which lived untill the Sunday following, being but of one onely ſexe, which was the female.

The ſhape of two monſtrous Twinnes, being but of one onely Sexe.



In the yeere 1572. on Eaſter Munday at *Metz* in *Loraine*, in the Inne whoſe ſigne is the Holy-Ghoſt, a Sow pigged a pigge, which had eight legges, foure eares, and the head of a dogge; the hinder part from the belly downeward was parted in two as in twinnes, but the foreparts grew into one; it had two tongues in the mouth, with foure teeth in the upper jaw, and as many in the lower. The ſexe was not to be diſtinguiſhed, whether it were a Bore or Sow pigge, for there was one ſlit under the taile, and the hinder parts were all rent and open. The ſhape of this monſter, as it is here ſet downe, was ſent me by *Borgeſius* the famous Phyſitian of *Metz*.

The ſhape of a monſtrous Pigge.



CHAP. III.

Of women bringing many children at one birth.

WOman is a creature bringing uſually but one at a birth: but there have been ſome who have brought forth two, ſome three, ſome foure, five, ſixe, or more at one birth. *Empedocles* thought that the abundance of ſeed was the cauſe of ſuch numerous births: the *Stoikes* affirme the divers cells or partitions of the wombe to be the cauſe: for the ſeed being

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following figure.

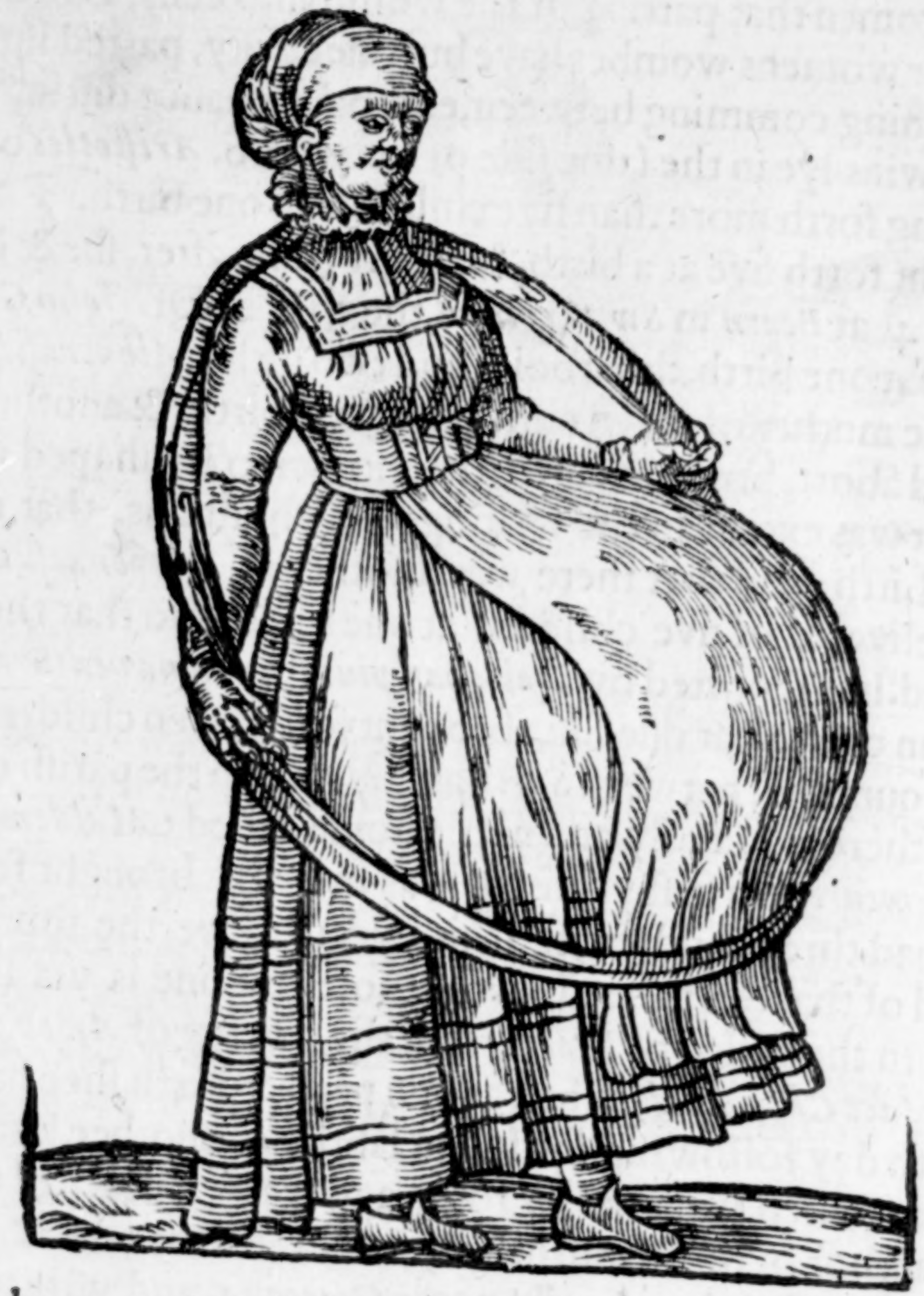
varioufly parted into theſe partitions, and the conception divided, there are more children brought forth; no otherwiſe than in rivers, the water beating againſt the rockes, is turned into divers circles or rounds. But *Ariſtotle* ſaith there is no reaſon to think ſo, for in women that parting of the womb into cells, as in dogs and ſowes, taketh no place; for womens wombes have but one cavity, parted into two receſſes, the right & left, nothing comming between, except by chance diſtinguiſhed by a certain line; for often twins lye in the ſame ſide of the womb. *Ariſtotles* opinion is, that a woman cannot bring forth more than five children at one birth. The maide of *Augustus Cæſar* brought forth five at a birth, & a ſhort while after, ſhe & her children died. In the yeer 1554. at *Bearn* in *SwitZerland*, the wife of Dr. *John Gelinger* brought forth five children at one birth, three boies and two girles. *Albucraſis*, affirmes a woman to have bin the mother of ſeven children at one birth; & another, who by ſome externall injury did abort, brought forth fifteene perfectly ſhaped in all their parts. *Pliny* reports that it was extant in the writings of Phyſitians, that twelve children were borne at one birth; and that there was another in *Peloponneſus* which foure ſeverall times was delivered of five children at one birth, and that the greater part of thoſe children lived. It is reported by *Dalechampius* that *Bonaventura* the ſlave of one *Savill*, a Gentleman of *Sena*, at one time brought forth ſeven children, of which four were baptized. In our time, between *Sarte* and *Maine*, in the pariſh of *Seaux*, not far from *Chambellay*, there is a family and noble houſe called *Maldemeure*; the wife of the Lord of *Maldemeure*, the firſt yeere ſhe was married brought forth twinnes, the ſecond yeere ſhe had three children, the third yeere foure, the fourth yeere five, the fift yeere ſixe, and of that birth ſhe died: of thoſe ſixe one is yet alive, and is Lord of *Maldemeure*. In the valley of *Beaufort*, in the county of *Anjou*, a young woman the daughter of *Mace Channiere*, when at one perfect birth ſhee had brought forth one child, the tenth day following ſhe fell in labour of another, but could not be delivered untill it was pulled from her by force, and was the death of the mother. *Martin Cromerus* the author of the Poliſh hiſtory, writeth that one *Margaret*, a woman ſprung from a noble and antient family neere *Cracovia*, and wife to Count *Virboſlaus*, brought forth at one birth thirty five live children, upon the twentieth day of *January*, in the yeere 1296. *Franciſcus Picus Mirandula* writeth that one *Dorothy* an Italian had twenty children at two births, at the firſt nine, and at the ſecond eleven, and that ſhe was ſo bigge, that ſhe was forced to beare up her belly, which lay upon her knees, with a broad and large ſcarfe tyed about her necke, as you may ſee by the following figure.

4. de gen. anim. cap. 4.

Lib. 7. cap. 11.
Cap. 3.

The ninth book of the Poliſh hiſtory.

The picture of Dorothy, *great with child with many children.*



And they are to bee reprehended here againe, who affirme the cauſe of numerous births to conſiſt in the variety of the cells of the wombe, for they feigne a womans wombe to have ſeven cells or partitions, three on the right ſide for males, three on the left ſide for females, and one in the midſt for Hermaphrodites or Scrats: and this untruth hath gon ſo far, that there have bnene ſome that affirmed every of theſe ſeven cells to have bin divided into ten partitions, into which the ſeed diſperſed, doth bring forth a divers and numerous encreaſe, according to the variety of the cells furniſhed with the matter of ſeed; which though it may ſeeme to have been the opinion of *Hippocrates*, in his book *De natura Pueri*, notwithſtanding it is repugnant to reaſon, and to thoſe things which are manifeſtly apparent to the eyes and ſenſes.

Lib. 4. de gen. anim. cap. 4. The opinion of *Ariſtotle* is more probable, who ſaith twinnes and more at one birth, are begot and brought forth by the ſame cauſe that the ſixt finger groweth on the hand, that is, by the abundant plenty of the ſeed, which is greater and more copious than can bee all taken up in the naturall framing of one body: for if it all be forced into one, it maketh one with the parts encreaſed more than is fit, either in greatneſſe or number; but if it bee, as it were, cloven into divers parts, it cauſeth more than one at one birth.

Chap. IV.

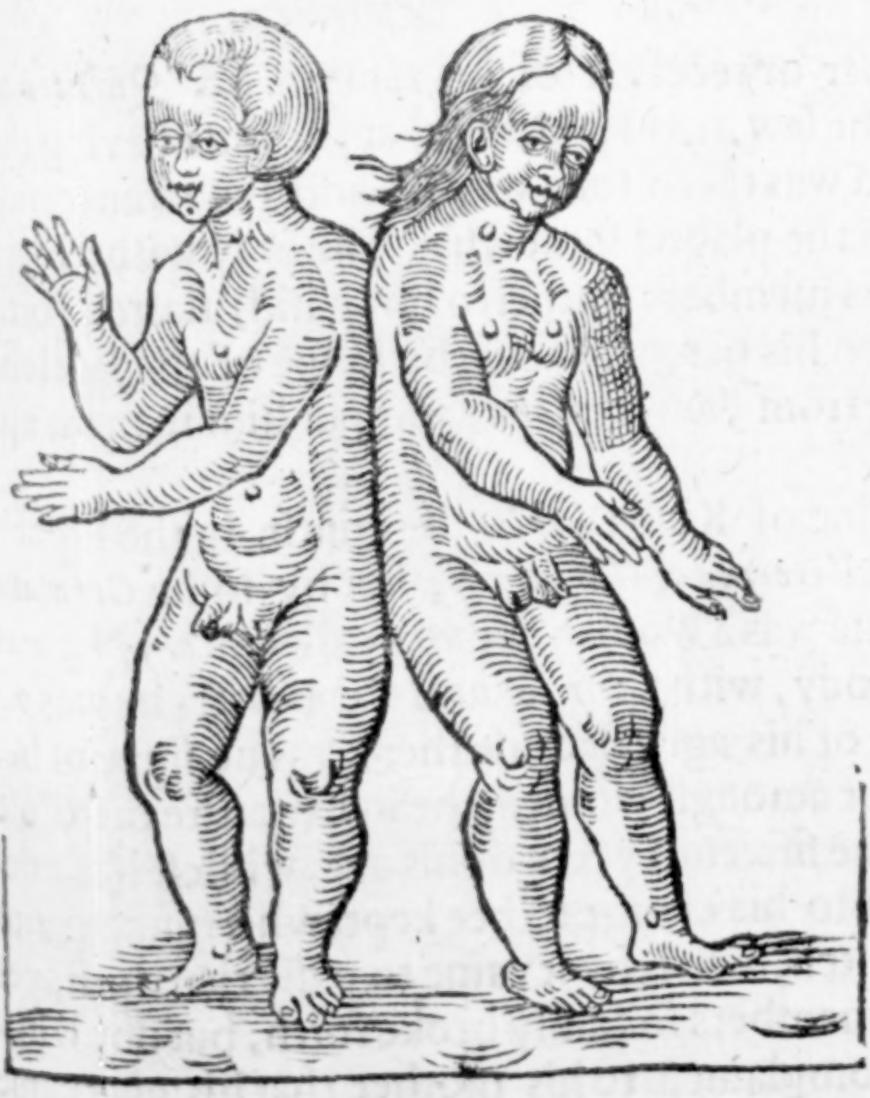
Of Hermaphrodites or Scrats.

AND here alſo we muſt ſpeake of Hermaphrodites, becauſe they draw the cauſe of their generation and conformation from the plenty and abundance of ſeed, and are called ſo becauſe they are of both ſexes, the woman yeelding as much ſeed as the man. For hereupon it commeth to paſſe that the forming faculty (which alwaies endeavours to produce ſomething like it ſelfe) doth labour both the matters almoſt with equall force, and is the cauſe that one body is of both ſexes.

Yet ſome make foure differences of Hermaphrodites; the firſt of which is the male Hermaphrodite, who is a perfect and abſolute male, and hath onely a ſlit in the *Perinæum* not perforated, and from which neither urine nor ſeed doth flow. The ſecond is the female, which beſides her naturall privity, hath a fleſhy and skinny ſimilitude of a mans yard, but unapt for erection and ejaculation of ſeed, and wanteth the cod and ſtones; the third difference is of thoſe, which albeit they beare the expreſſe figures of members belonging to both ſexes, commonly ſet the one againſt the other, yet are found unapt for generation, the one of them onely ſerving for making of water: the fourth difference is of thoſe who are able in both ſexes, and throughly performe the part both of man and woman, becauſe they have the genitalls of both ſexes compleat and perfect, and alſo the right breaſt like a man, and the left like a woman: the lawes command thoſe to chuſe the ſexe which they will uſe, and in which they will remaine and live, judging them to death if they be found to have departed from the ſexe they made choice of, for ſome are thought to have abuſed both, and promiſcuouſly to have had their pleaſure with men and women. There are ſignes by which the Phyſitians may diſcerne whether the Hermaphrodites are able in the male or female ſexe, or whether they are impotent in both: theſe ſignes are moſt apparent in the privities and face; for if the matrix be exact in all its demenſions, and ſo perforated that it may admit a mans yard, if the courſes flow that way, if the haire of the head bee long, ſlender, and ſoft, and to conclude, if to this tender habite of the body a timide and weake condition of the minde be added, the female ſexe is predominant, and they are plainely to bee judged women. But if they have the *Perinæum* and fundament full of haires (the which in women are commonly without any) if they have a yard of a convenient largeneſſe, if it ſtand well & readily, and yeeld ſeed, the male ſexe hath the preheminence, and they are to be judged men. But if the conformation of both the genitalls be alike in figure, quantity, and efficacy, it is thought to be equally able in both ſexes: although by the opinion of *Ariſtotle*, thoſe who have double genitals, the one of the male, the other of the female, the one of them is alwaies perfect, the other imperfect.

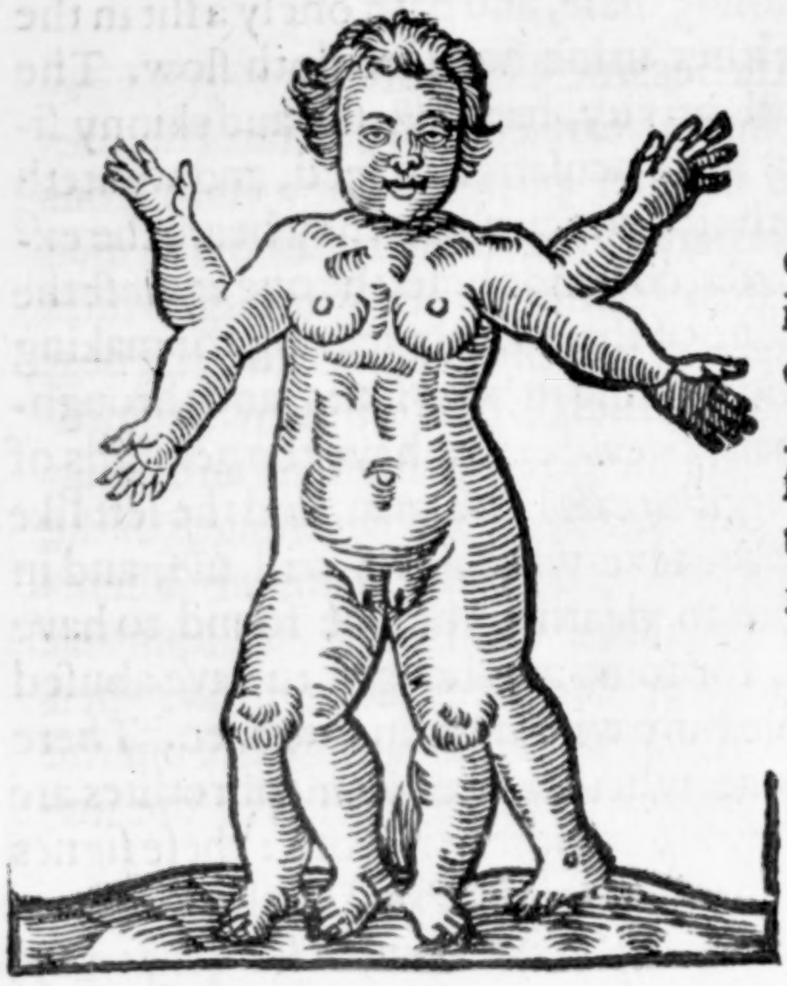
Lib. 4. de gener. anim. cap. 5.

The figure of Hermaphrodite twinnes cleaving together with their backes.



Anno Dom. 1486. In the *Palatinate*, at the village *Robach*, neere *Heidelberg*, there were twinnes, both Hermaphrodites, borne with their backs ſticking together.

The effigies of an Hermaphrodite, having foure hands and feet.



The ſame day the *Venetians* and *Genoeſes* entred into league, there was a monſter borne in *Italy* having foure armes and feet, and but one head; it lived a little after it was baptized. *James Rueſ a Helvetian* Chirurgian ſaith hee ſaw the like, but which beſides had the privities of both ſexes, whoſe figure I have therefore here ſet forth.

Chap. V.

Of the changing of Sexe.

Amatus *Luſitanus* reports that in the village *Eſquina*, there was a maid named *Maria Pateca*, who at the appointed age for her courſes to flow, had in ſtead of them a mans yard, lying before that time hid and covered, ſo that of a woman ſhe became a man, and therefore laying aſide her womans habite, was cloathed in mans, and changing her name, was called *Emanuel*; who when hee had got much wealth by many and great negotiations and commerce in *India*, returned into his country, and married a wife: but *Luſitanus* ſaith he did not certainely know whether he had any children, but that he was certaine he remained alwaies beardleſſe.

Anthony Loqueneux, the Kings keeper or receiver of his rents of St. *Quintin* at *Vermandois*, lately affirmed to me that he ſaw a man at *Reimes*, at the Inne having the ſign of the ſwan, in the yeer 1560. who was taken for a woman untill the fourteenth yeere of his age; for then it happened as he played ſomewhat wantonly with a maid which lay in the ſame bed with him, his members (hitherto lying hid) ſtarted forth and unfolded them ſelves: which when his parents knew (by helpe of the Eccleſiaſticke power) they changed his name from *Joane* to *John*, and put him in mans apparell.

Some yeeres agone, being in the traine of King *Charles* the ninth, in the French Glaſſe-houſe, I was ſhewed a man called *Germane Garnierus*, but by ſome *Germane Maria* (becauſe in former times when he was a woman hee was called *Mary*) he was of an indifferent ſtature, and well ſet body, with a thicke and red beard; he was taken for a girle untill the fifteenth yeere of his age, becauſe there was no ſigne of being a man ſeene in his body, and for that amongſt women, he in like attire did thoſe things which pertaine to women: in the fifteenth yeere of his age, whileſt he ſomewhat earneſtly purſued hogges given into his charge to bee kept, who running into the corne, he leaped violently over a ditch, whereby it came to paſſe that the ſtayes and foldings being broken, his hidden members ſodainly broke forth, but not without paine; going home, hee weeping complained to his mother that his guts came forth: with which his mother amazed, calling Phyſitians and Surgeons to counſell, heard he was turned into a man; therefore the whole buſineſſe being brought to the Cardinall the Biſhop of *Lenancure*, an aſſembly being called, he received the name and habite of a man.

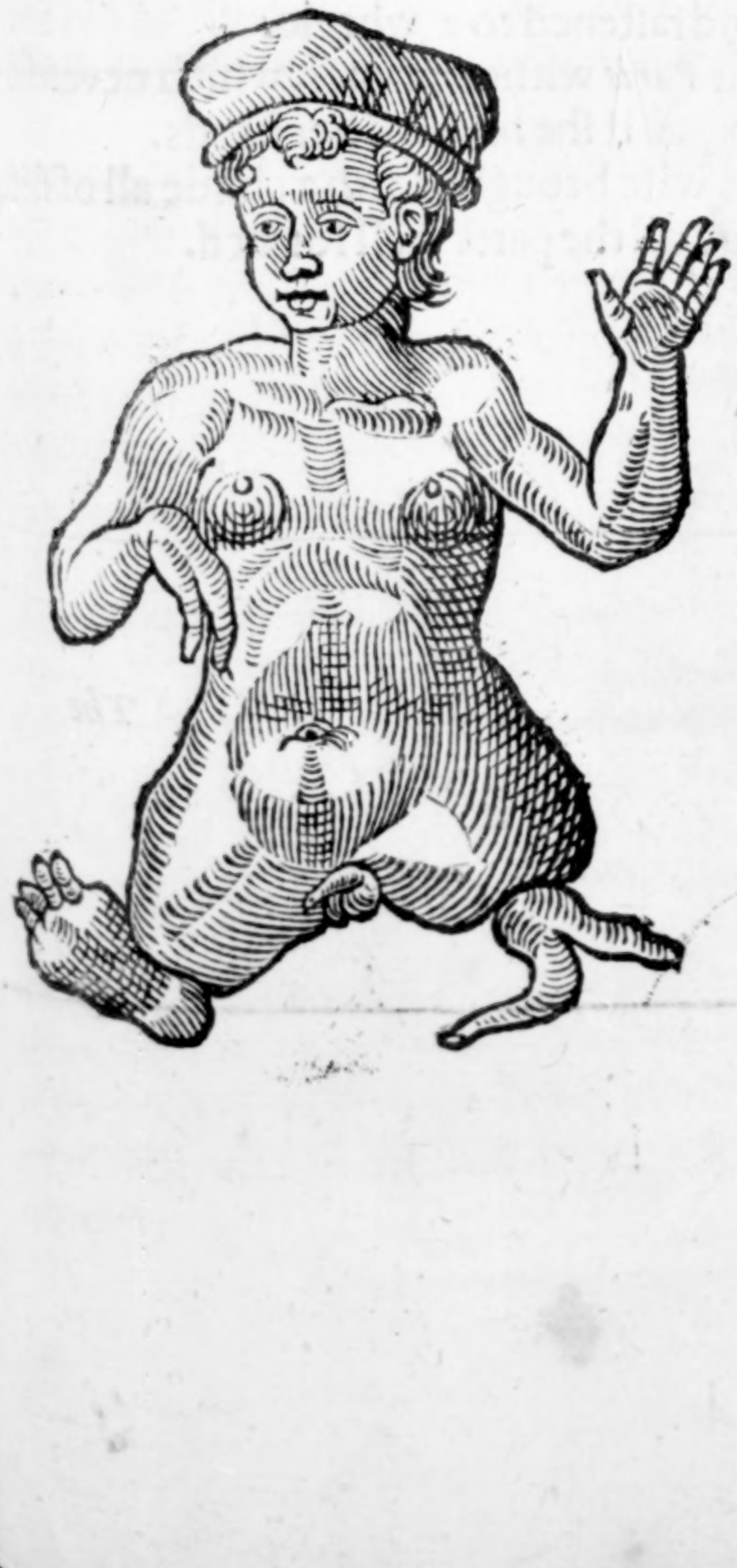
Pliny reports that the ſonne of *Caſsinus* of a girle became a boy, living with his parents; but by the command of the Soothſayers he was carried into a deſart Iſle, becauſe they thought ſuch monſters did alwaies ſhew or portend ſome monſtrous thing. Certainely women have ſo many and like parts lying in their wombe, as men have hanging forth; onely a ſtrong and lively heat ſeemes to bee wanting, which may drive forth that which lyes hid within: therefore in proceſſe of time, the heat being encreaſed and flouriſhing, and the humidity (which is predominant in childhood) overcome, it is not impoſſible that the virile members, which hitherto ſluggiſh by defect of heat, lay hid, may be put forth, eſpecially if to that ſtrength of the growing heat ſome vehement concuſſion or jactation of the body be joined. Therefore I thinke it manifeſt by theſe experiments and reaſons, that it is not fabulous that ſome women have beene changed into men: but you ſhall finde in no hiſtory men that have degenerated into women; for nature alwaies intends and goes from the imperfect to the more perfect, but not baſely from the more perfect to the imperfect.

CHAP. VI.

Of monſters cauſed by defect of ſeed.

IF, on the contrary, the ſeed be any thing deficient in quantity, for the conformation of the infant or infants, ſome one or more members will be wanting, or more ſhort and decrepite. Hereupon it happens that nature intending twinnes, a childe is borne with two heads, and but one arme, or altogether lame in the reſt of his limbes.

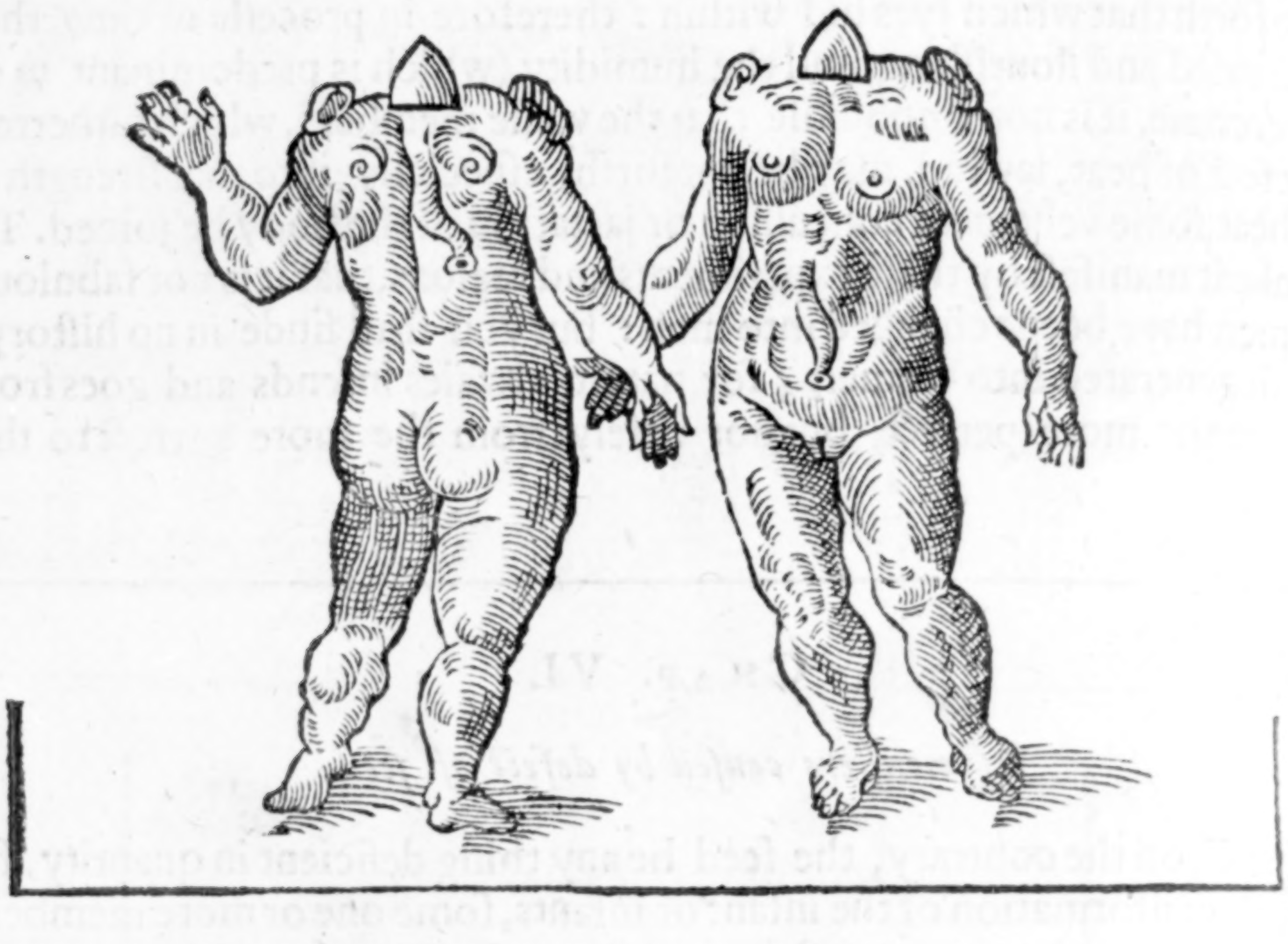
The effigies of a monſtrous childe, by reaſon of the defect of the matter of ſeed.



Anno Dom. 1573. I ſaw at St. *Andrewes* Church in *Paris*, a boy nine yeeres old, borne in the village *Parpavilla*, ſixe miles from *Guiſe*; his fathers name was *Peter Renard*, and his mother, *Marquete*: hee had but two fingers on his right hand, his arm was well proportioned from the top of his ſhoulder almoſt to his wreſt, but from thence to his two fingers ends it was very deformed, he wanted his leggs and thighes, although from the right buttocke a certaine unperfect figure, having onely foure toes, ſeemed to put it ſelfe forth; from the midſt of the left buttock two toes ſprung out, the one of which was not much unlike a mans yard, as you may ſee by the figure.

In the yeere 1562. in the Calends of *November*, at *Villa franca* in *Gaſcony*, this monſter, a headleſſe woman, whoſe figure thou heere ſeeſt, was borne, which figure Dr. *John Altinus* the Phyſitian gave to mee when I went about this booke of Monſters, he having received it from *Fontanus* the Phyſitian of *Angoleſtre*, who ſeriouſly affirmed he ſaw it.

The figure of a monſtrous woman without a head, before and behind.



A few yeeres agone there was a man of forty yeeres old to be ſeene at *Paris*, who although he wanted his armes, notwithſtanding did indifferently performe all thoſe things which are uſually done with the hands, for with the top of his ſhoulder, head and necke, hee would ſtrike an Axe or Hatchet with as ſure and ſtrong a blow into a poaſt, as any other man could doe with his hand; and hee would laſh a coach-mans whip, that he would make it give a great crack, by the ſtrong refraction of the aire: but he ate, drunke, plaid at cardes, and ſuch like, with his feet. But at laſt he was taken for a thiefe and murderer, was hanged and faſtened to a wheele.

Alſo not long agoe there was a woman at *Paris* without armes, which nevertheleſſe did cut, ſew, and doe many other things, as if ſhe had had her hands.

Sect. 2. lib. 2. epidem. We read in *Hippocrates*, that *Attagenis* his wife brought forth a childe all of fleſh without any bone, and notwithſtanding it had all the parts well formed.

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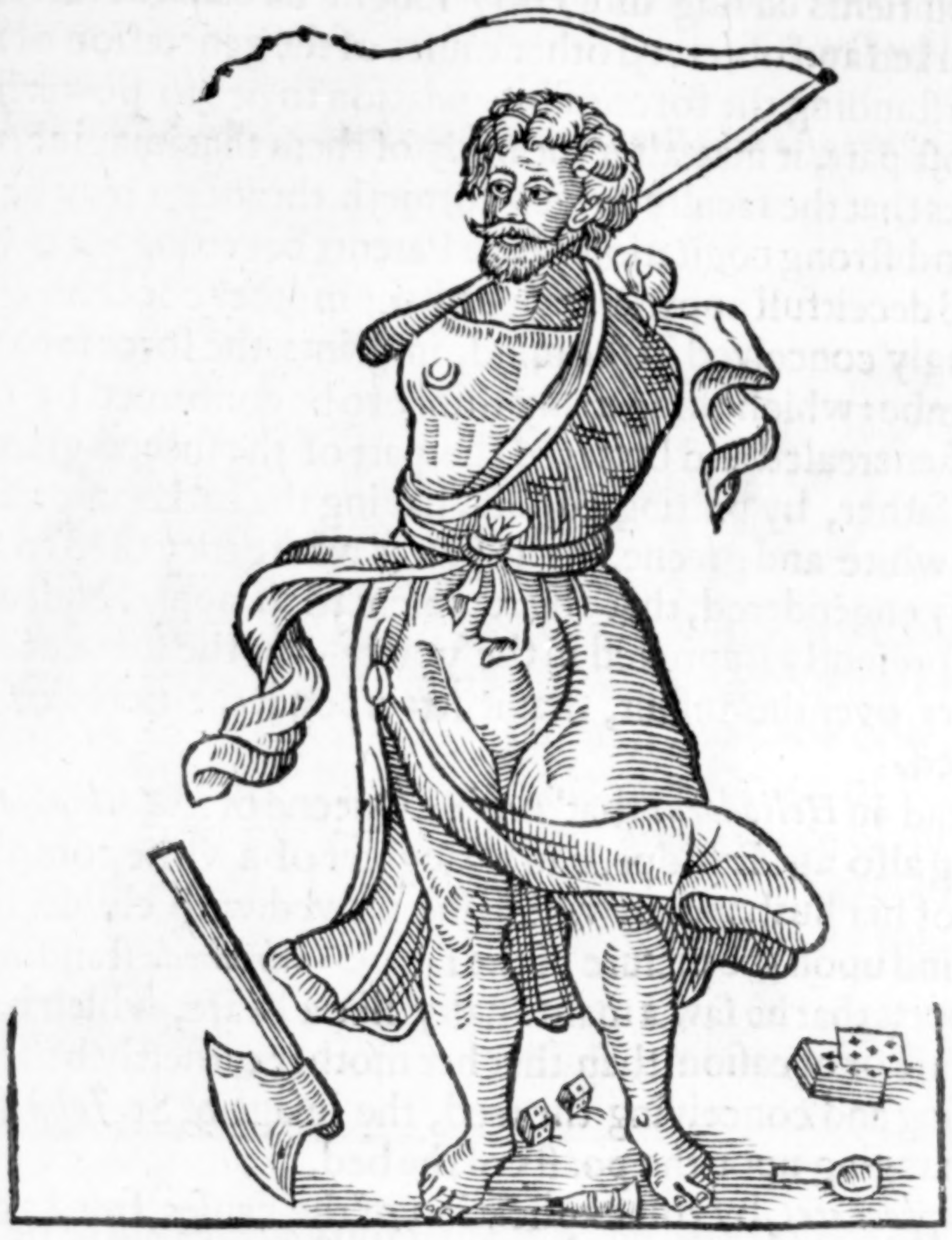
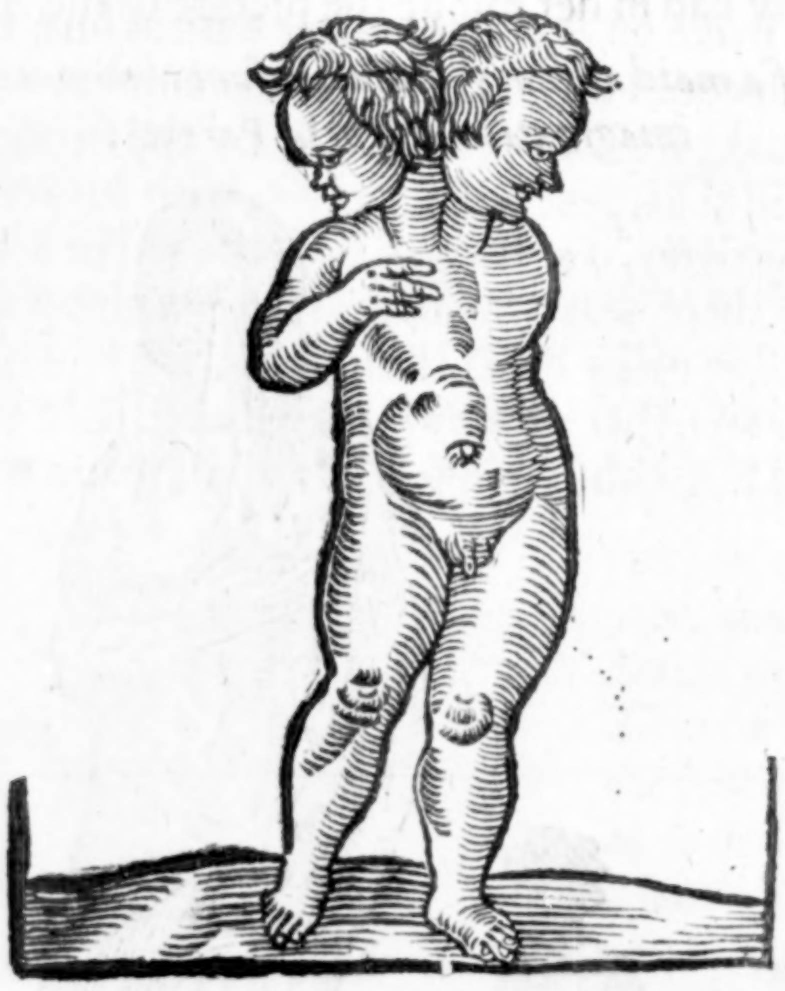
The effigies of a man without armes, doing all that is uſually done with hands.



The effigies of a monſter with two heads, two legs, and but one arme.



Chap.

Chap. VII.

Of monſters which take their cauſe and ſhape by imagination.

The force of imagination upon the body and humours.

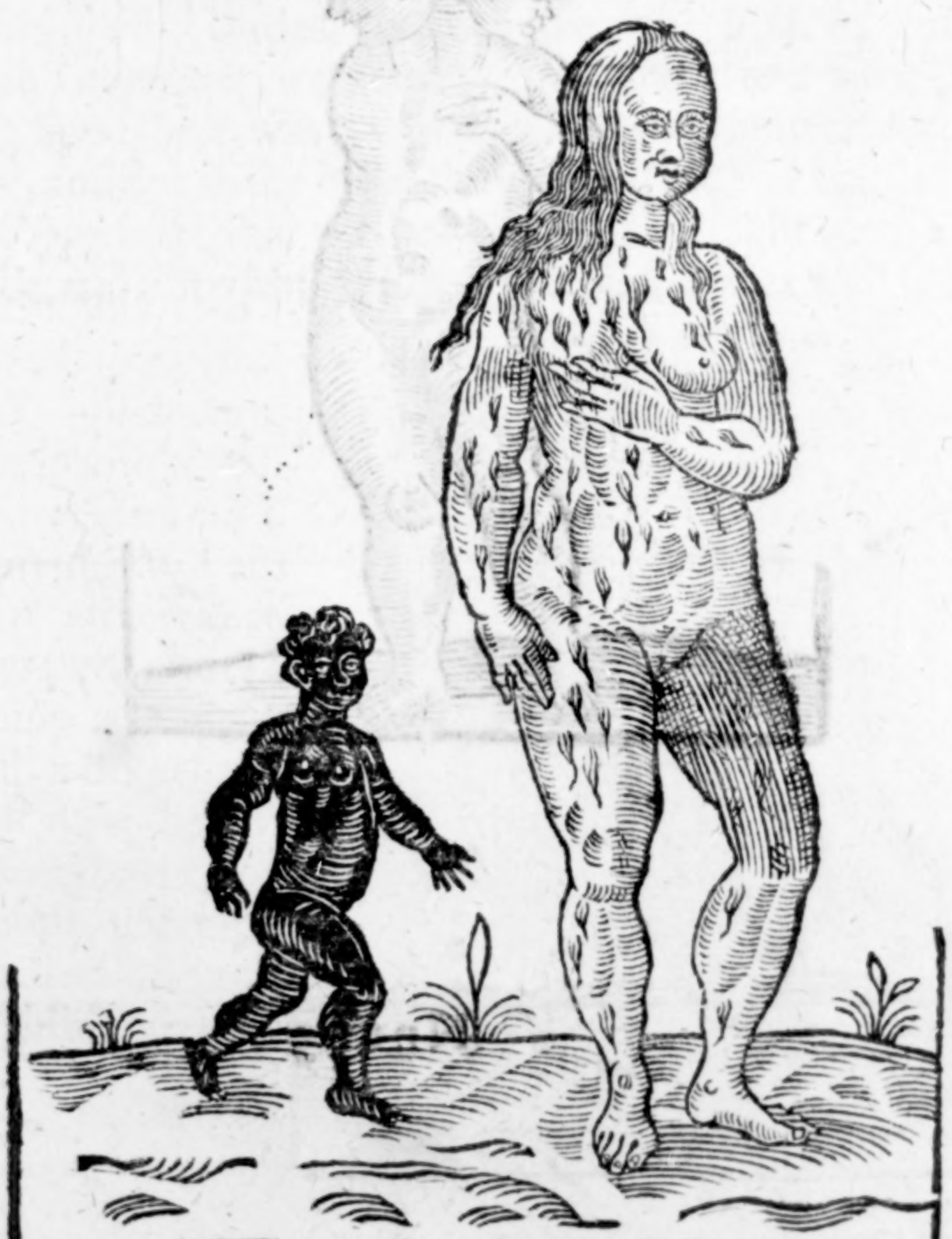
THe antients having diligently ſought into all the ſecrets of nature, have marked and obſerved other cauſes of the generation of monſters: for, underſtanding the force of imagination to bee ſo powerfull in us, as for the moſt part, it may alter the body of them that imagine, they ſoon perſwaded themſelves that the faculty which formeth the infant may be led and governed by the firme and ſtrong cogitation of the Parents begetting them (often deluded by nocturnall and deceitfull apparitions) or by the mother conceiving them, and ſo that which is ſtrongly conceived in the mind, imprints the force into the infant conceived in the wombe: which thing many thinke to be confirmed by *Moſes*, becauſe he tells that *Jacob* encreaſed and bettered the part of the ſheepe granted to him by *Laban*, his wives father, by putting roddes, having the barke in part pulled off, finely ſtroaked with white and greene, in the places where they uſed to drinke, eſpecially at the time they engendered, that the repreſentation apprehended in the conception, ſhould be preſently impreſſed in the young; for the force of imagination hath ſo much power over the infant, that it ſets upon it the notes or characters of the thing conceived.

Gen. chap. 30.

We have read in *Heliodorus* that *Perſina* Queene of *Æthiopia*, by her husband *Hidustes*, being alſo an Æthiope, had a daughter of a white complexion, becauſe in the embraces of her husband, by which ſhe proved with childe, ſhe earneſtly fixed her eye and mind upon the picture of the faire *Andromeda* ſtanding oppoſite to her. *Damaſcene* reports that he ſaw a maide hairy like a Beare, which had that deformity by no other cauſe or occaſion than that her mother earneſtly beheld, in the very inſtant of receiving and conceiving the ſeed, the image of St. *John* covered with a camells ſkinne, hanging upon the poaſts of the bed.

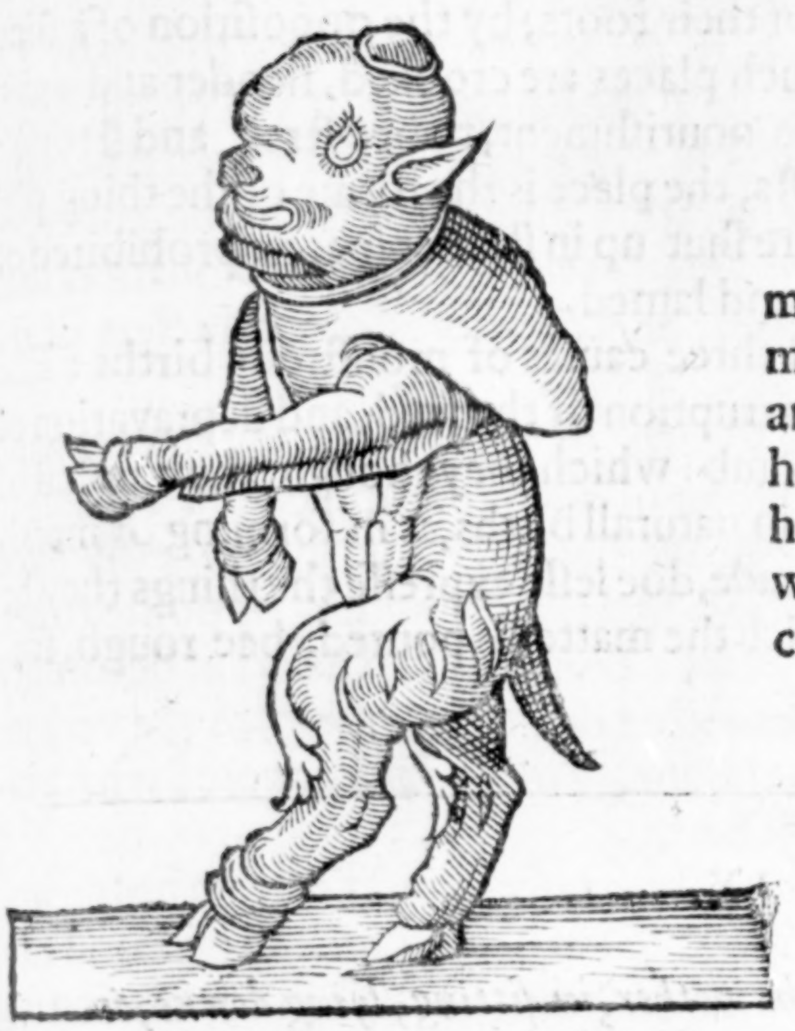
They ſay *Hippocrates*, by this explication of the cauſes, freed a certain noble woman from ſuſpicion of adultery, who being white her ſelfe, and her husband alſo white, brought forth a childe as blacke as an Æthiopian, becauſe in copulation ſhe ſtrongly and continually had in her minde the picture of the Æthiope.

The effigies of a maid all hairy, and an infant that was blacke by the imagination of their Parents.



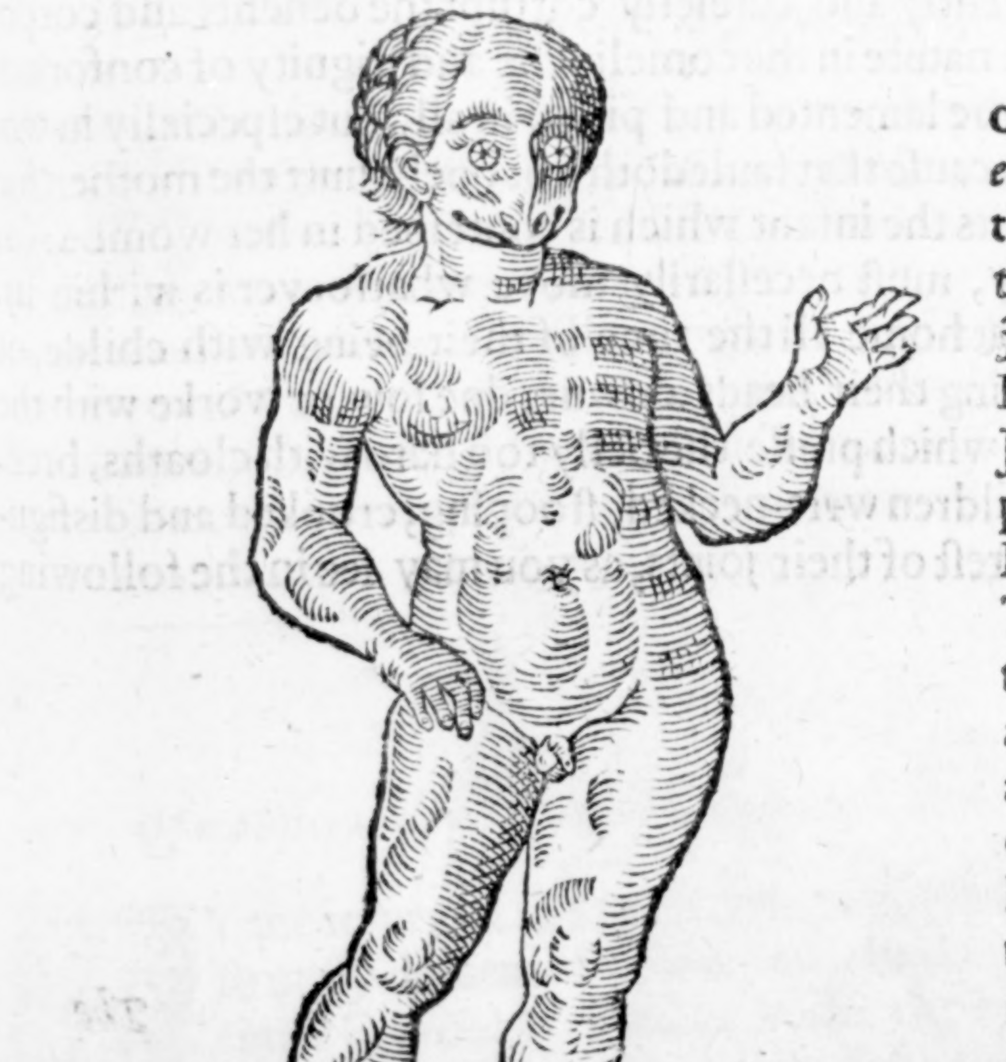
There are ſome who thinke the infant once formed in the wombe, which is done at the utmoſt within two & forty.dayes after the conception, is in no danger of the mothers imagination, neither of the ſeed of the father which is caſt into the womb; becauſe when it hath got a perfect figure, it cannot be altered with any external form of things; which whether it be true, or no, is not here to be enquired of: truly I think it beſt to keep the woman, all the time ſhe goeth with childe, from the ſight of ſuch ſhapes and figures.

The effigies of a horrid Monſter, having feet, hands, and other parts like a Calfe.



In *Stecquer* a village of *Saxony*, they ſay, a monſter was borne, with foure feet, eyes, mouth, and noſe like a calfe, with a round and redde excreſcence of fleſh on the forehead, and alſo a piece of fleſh like a hood hung from his necke upon his backe, and it was deformed with its thighes torne and cut.

The figure of an infant with a face like a Frog.



Anno Dom. 1517. in the pariſh of Kingſ-wood, in the forreſt *Biera*, in the way to *Fontain-Bleau*, there was a monſter borne, with the face of a Frog, being ſeen by *John Bellanger*, Chirurgian to the Kings Engineers, before the Juſtices of the towne of *Harmoy*; principally *John Bribon* the Kings procurator in that place. The fathers name was *Amadæus* the *Little*, his mothers, *Magdalene Sarbucata*, who troubled with a feaver, by a womans perſwaſion, held a quicke frogge in her hand untill it died, ſhe came thus to bed with her husband and conceived; *Bellanger*, a man of an acute wit, thought this was the cauſe of the monſtrous deformity of the childe.

CHAP. VIII.

Of Monſters cauſed by the ſtraitneſſe of the wombe.

That the ſtraitneſſe or littleneſſe of the wombe may be the occaſion of monſters.

WEE are conſtrained to confeſſe by the event of things, that monſters are bred and cauſed by the ſtraitneſſe of the wombe; for ſo apples hanging upon the trees, if before they come to juſt ripeneſſe, they bee put into ſtrait veſſels, their growth is hindered. So ſome whelps which women take delight in, are hindered from any further growth by the littleneſſe of the place in which they are kept. Who knowes not that the plants growing in the earth, are hindered from a longer progreſſe and propagation of their roots, by the oppoſition of a flint, or any other ſolid body, and therefore in ſuch places are crooked, ſlender and weak, but on the other part, where they have free nouriſhment, to bee ſtrait and ſtrong: for ſeeing that by the opinion of Naturaliſts, the place is the forme of the thing placed; it is neceſſary that thoſe things that are ſhut up in ſtraiter ſpaces, prohibited of free motion, ſhould be leſſened, depraved and lamed.

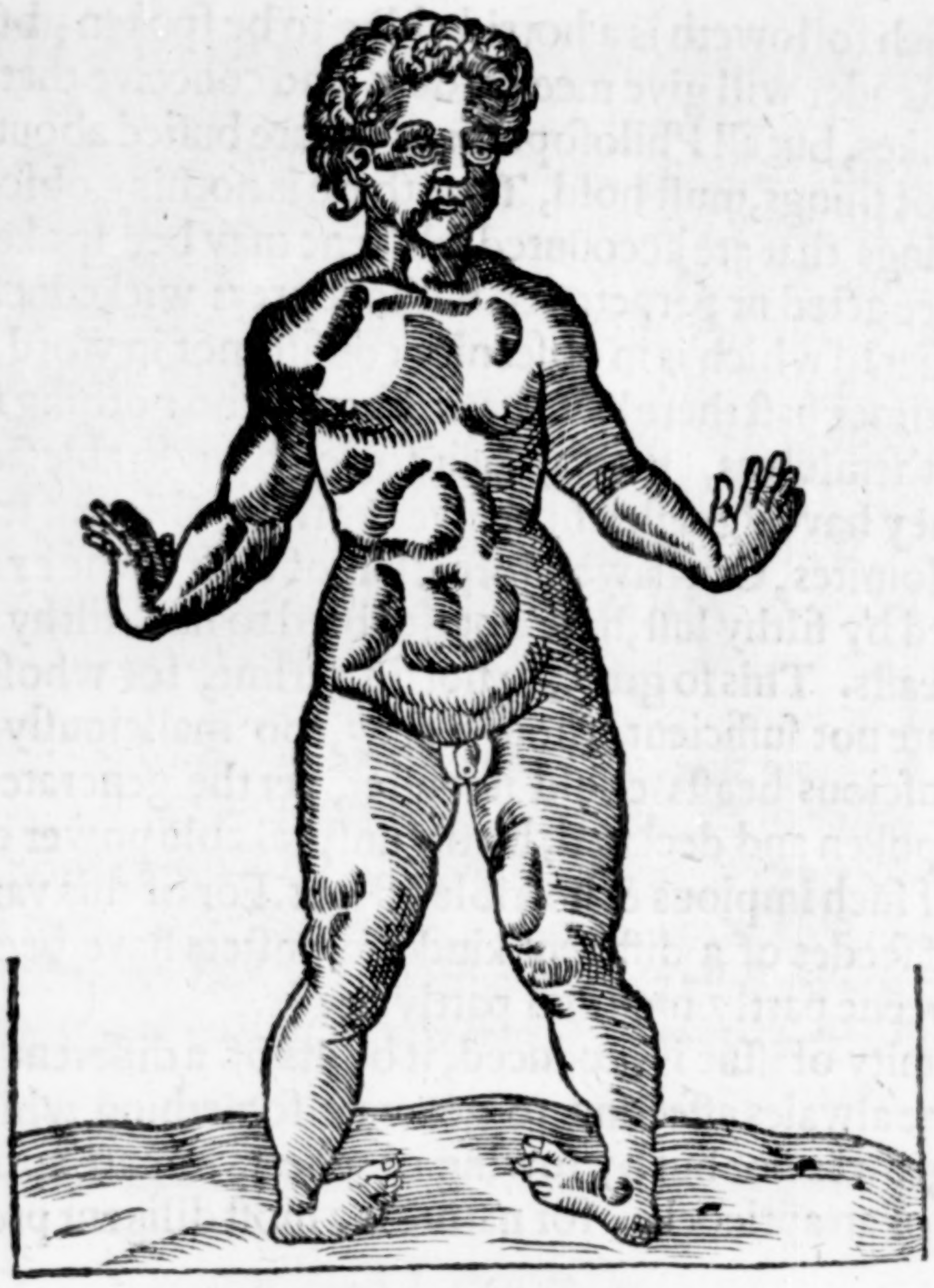
Empedocles and *Diphilus* acknowledged three cauſes of monſtrous births: The too great or ſmall matter of the ſeed; the corruption of the ſeed; and depravation of growth by the ſtraitneſſe or figure of the womb: which they thought the chiefeſt of all; becauſe they thought the caſe was ſuch in naturall births, as in forming of metals and fuſible things, of which ſtatues being made, doe leſſe expreſſe the things they be made for, if the moldes or formes into which the matter is poured, bee rough, ſcabrous, too ſtrait, or otherwiſe faulty.

CHAP. IX.

Of monſters cauſed by the ill placing of the mother, in ſitting, lying downe, or any other ſite of the body in the time of her being with childe.

WEE often too negligently and careleſly corrupt the benefits and corporall endowments of nature in the comelineſſe and dignity of conformation: it is a thing to be lamented and pitied in all, but eſpecially in women with childe, becauſe that fault doth not onely hurt the mother, but deformes and perverts the infant which is conteined in her wombe: for wee moving any manner of way, muſt neceſſarily move whatſoever is within us. Therefore they which ſit idely at home all the time of their being with childe, or croſſe-legged, thoſe which holding their heads downe, doe ſow or worke with the needle, or doe any other labour, which preſſe the belly too hard with cloaths, breeches or ſwathes, doe produce children wrie-necked, ſtooping, crooked and disfigured in their feet, hands, and the reſt of their joints, as you may ſee in the following figure.

The effigies of a childe, who from the firſt conception, by the ſite of the mother, had his hands and feet ſtanding crooked.



CHAP. X.

Of monſters cauſed by a ſtroake, fall, or the like occaſion.

THere is no doubt but if any injury happen to a woman with childe, by reaſon of a ſtroake, fall from on high, or the like occaſion, the hurt alſo may extend to the child. Therefore by theſe occaſions the tender bones may bee broken, wreſted, ſtrained, or depraved after ſome other monſtrous manner; and more, by the like violence of ſuch things, a veine is often opened or broken, or a fluxe of blood, or great vomiting is cauſed by the vehement concuſſion of the whole body, by which meanes the childe wants nouriſhment, and therefore will be ſmall and little, and altogether monſtrous.

CHAP. XI.

Of monſters which have their originall by reaſon of hereditary diſeaſes.

BY the injury of hereditary diſeaſes, infants grow monſtrous, that is, monſtrouſly deformed: for crooke-backt produce crooke-backt, and often times ſo crooked, that betweene the bunch behind and before, the head lies hid, as a Tortoiſe in her ſhell: ſo lame produce lame, flat noſed their like, dwarfes bring forth dwarfes, leane bring forth leane, and fat produce fat.

CHAP.

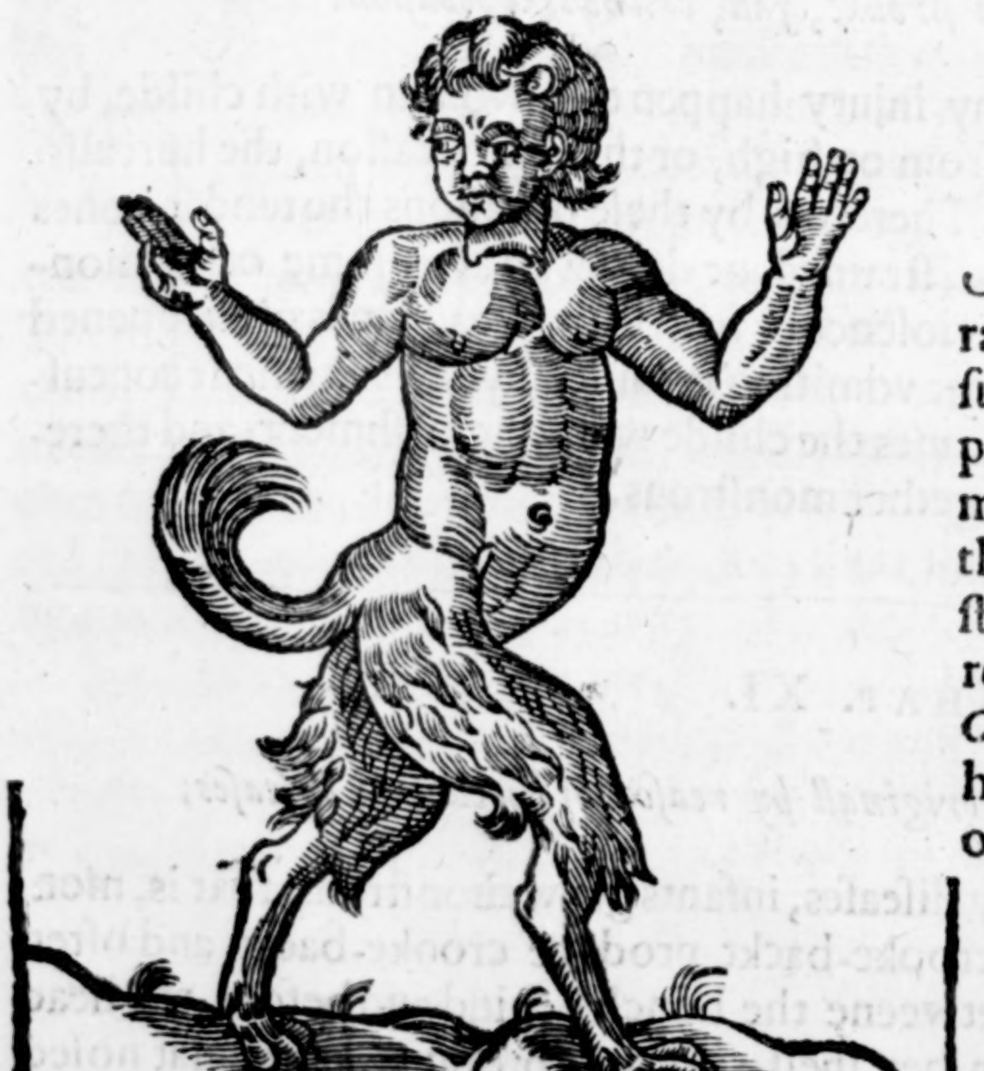
Chap. XII.

Of monsters by the confuſion of ſeed of divers kindes.

THat which followeth is a horrid thing to be ſpoken; but the chaſt minde of the Reader will give mee pardon, and conceive that, which not onely the Stoikes, but all Philoſophers, who are buſied about the ſearch of the cauſes of things, muſt hold, That there is nothing obſcene or filthy to be ſpoken. Thoſe things that are accounted obſcene may bee ſpoken without blame, but they cannot bee acted or perpetrated without great wickedneſſe, fury and madneſſe; therefore that ill which is in obſcenity conſiſts not in word, but wholly in the act. Therefore in times paſt there have beene ſome, who nothing fearing the Deity, neither Law, nor themſelves, that is, their ſoule, have ſo abjected and proſtrated themſelves, that they have thought themſelves nothing different from beaſts: wherefore Atheiſts, Sodomites, Out-lawes, forgetfull of their owne excellency and divinity, & transformed by filthy luſt, have not doubted to have filthy and abhominable copulation with beaſts. This ſo great, ſo horrid a crime, for whoſe expiation all the fires in the world are not ſufficient, though they, too maliciouſly crafty, have concealed, and the conſcious beaſts could not utter, yet the generated miſ-ſhapen iſſue hath abundantly ſpoken and declared, by the unſpeakable power of God, the revenger and puniſher of ſuch impious & horrible actions. For of this various and promiſcuous confuſion of ſeedes of a different kinde, monſters have beene generated and borne, who have beene partly men and partly beaſts.

The like deformity of iſſue is produced, if beaſts of a different ſpecies doe copulate together, nature alwaies affecting to generate ſomething which may bee like it ſelfe: for wheat growes not but by ſowing of wheat; nor an apricocke but by the ſetting or grafting of an apricocke; for nature is a moſt diligent preſerver of the ſpecies of things.

The effigies of a monſter halfe man and halfe dogge.

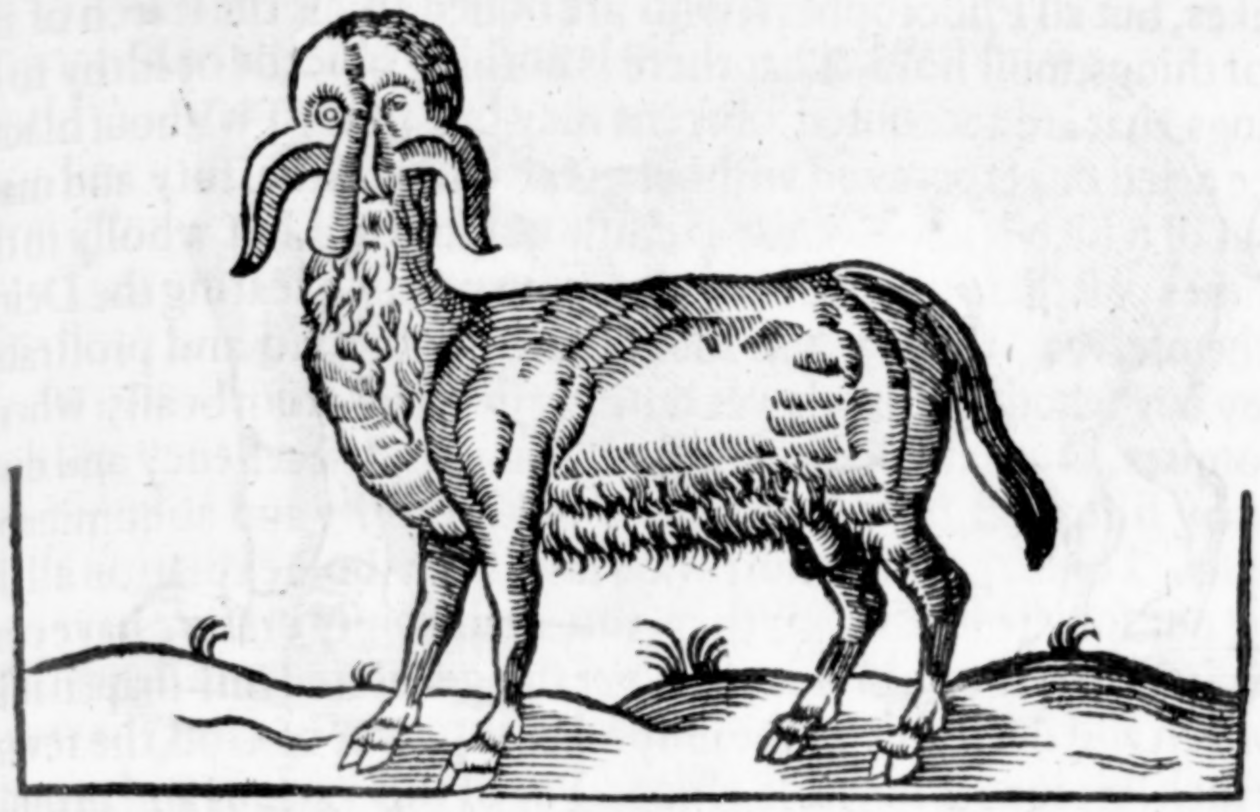


Anno Dom. 1493. there was generated of a woman and a dogge, an iſſue, which from the navell upwards perfectly reſembled the ſhape of the mother, but therehence downewards the ſire, that is, the dogge. This monſter was ſent to the Pope that then reigned, as *Volaterane* writeth: alſo *Cardane* mentions it; wherefore I have here given you the figure thereof.

Card. lib. 14. de var. rerum cap. 64.

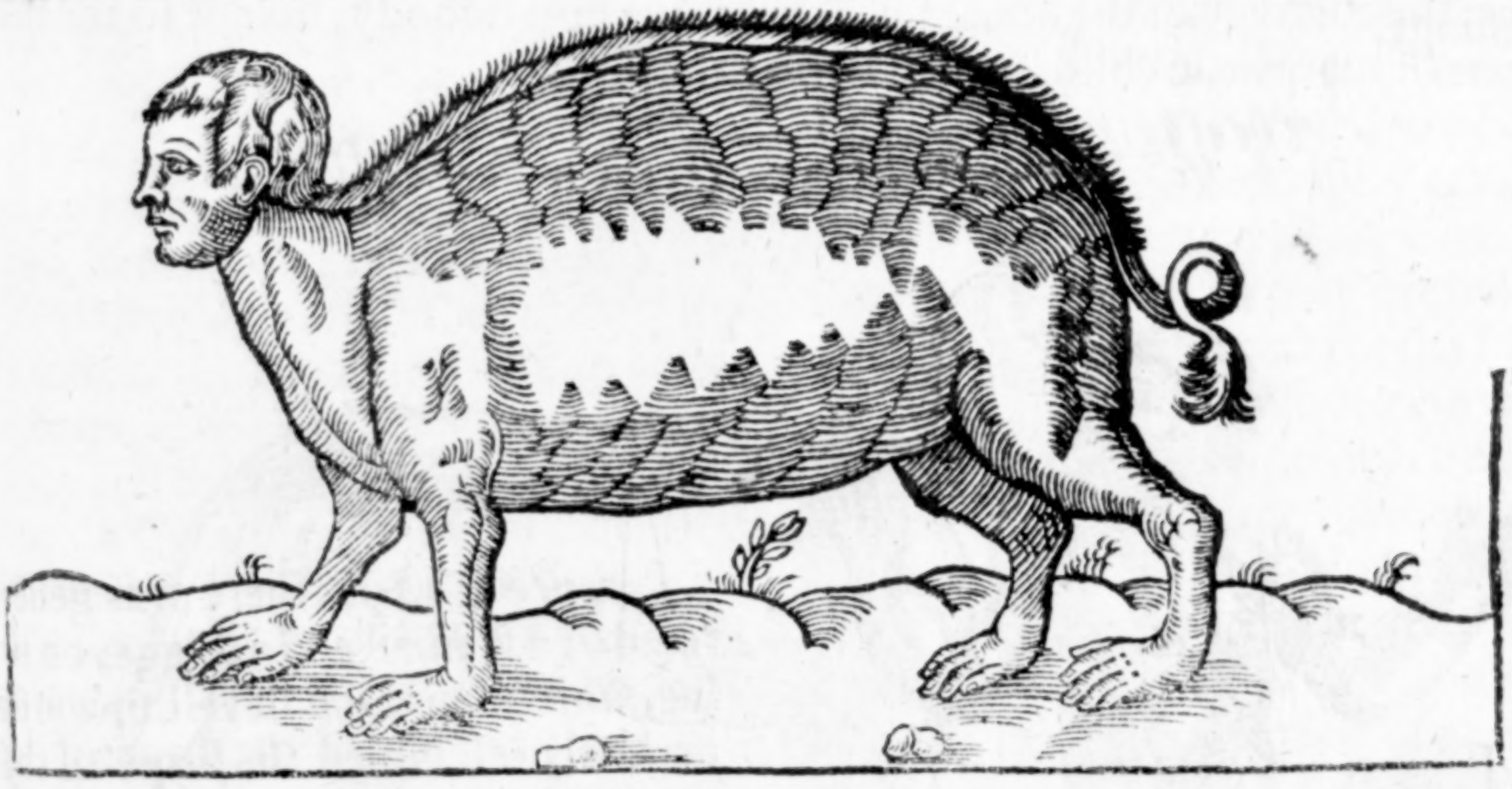
Cælius Rhodiginus writes that at *Sibaris*, a heards-man called *Chrathis* fell in love with a Goat, and accompanied with her, and of this deteſtable and brutiſh copulation an infant was born, which in legges reſembled the damme, but the face was like the fathers.

The figure of a monſter in face reſembling a man, but a Goat in his other members.



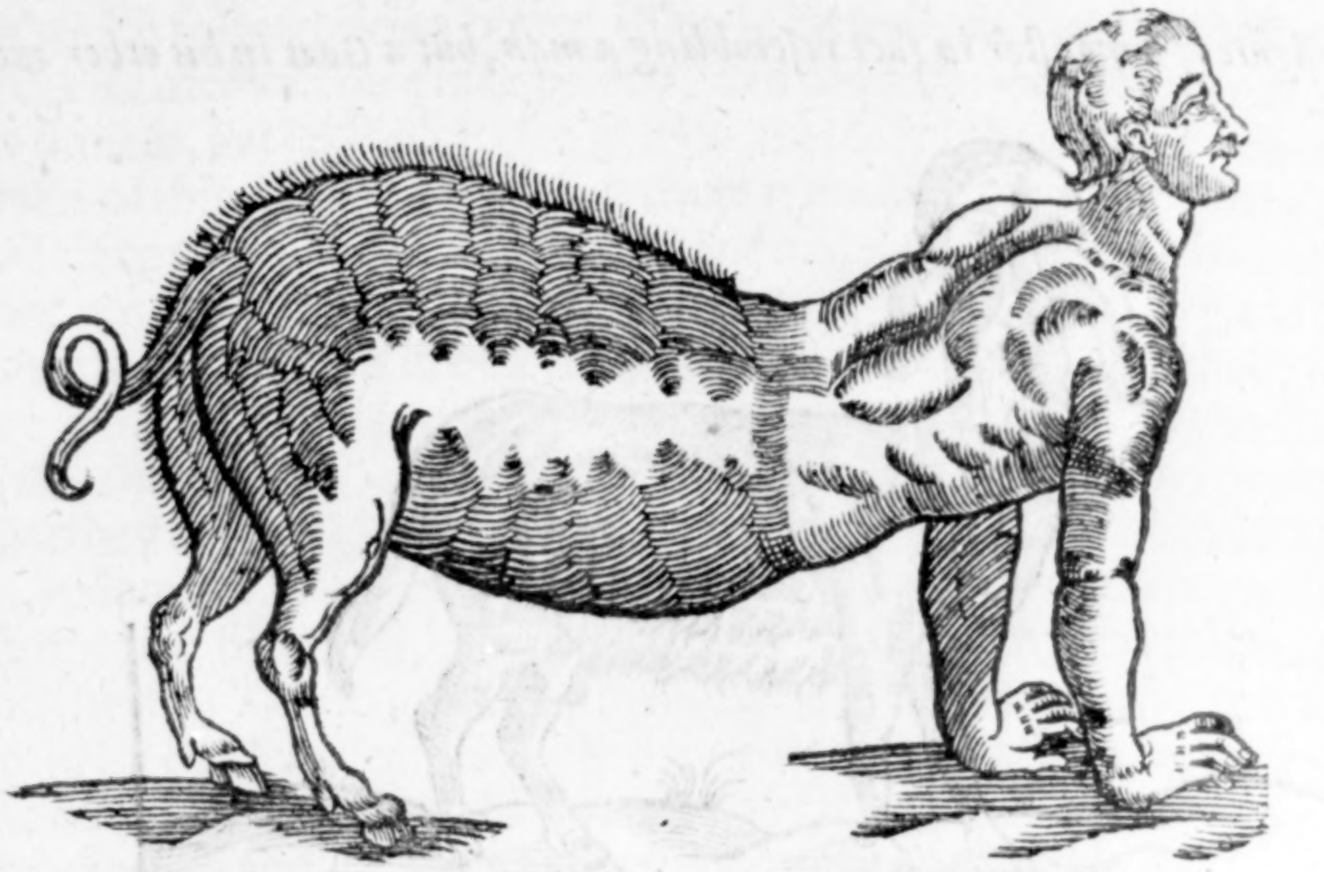
Anno Dom. 1110. In a certaine towne of *Liege* (as ſaith *Lycoſthenes*) a ſow farrowed a pig with the head, face, hands, and feet of a man, but in the reſt of the body reſembling a ſwine.

The figure of a pigge, with the head, face, hands, and feet of a man.



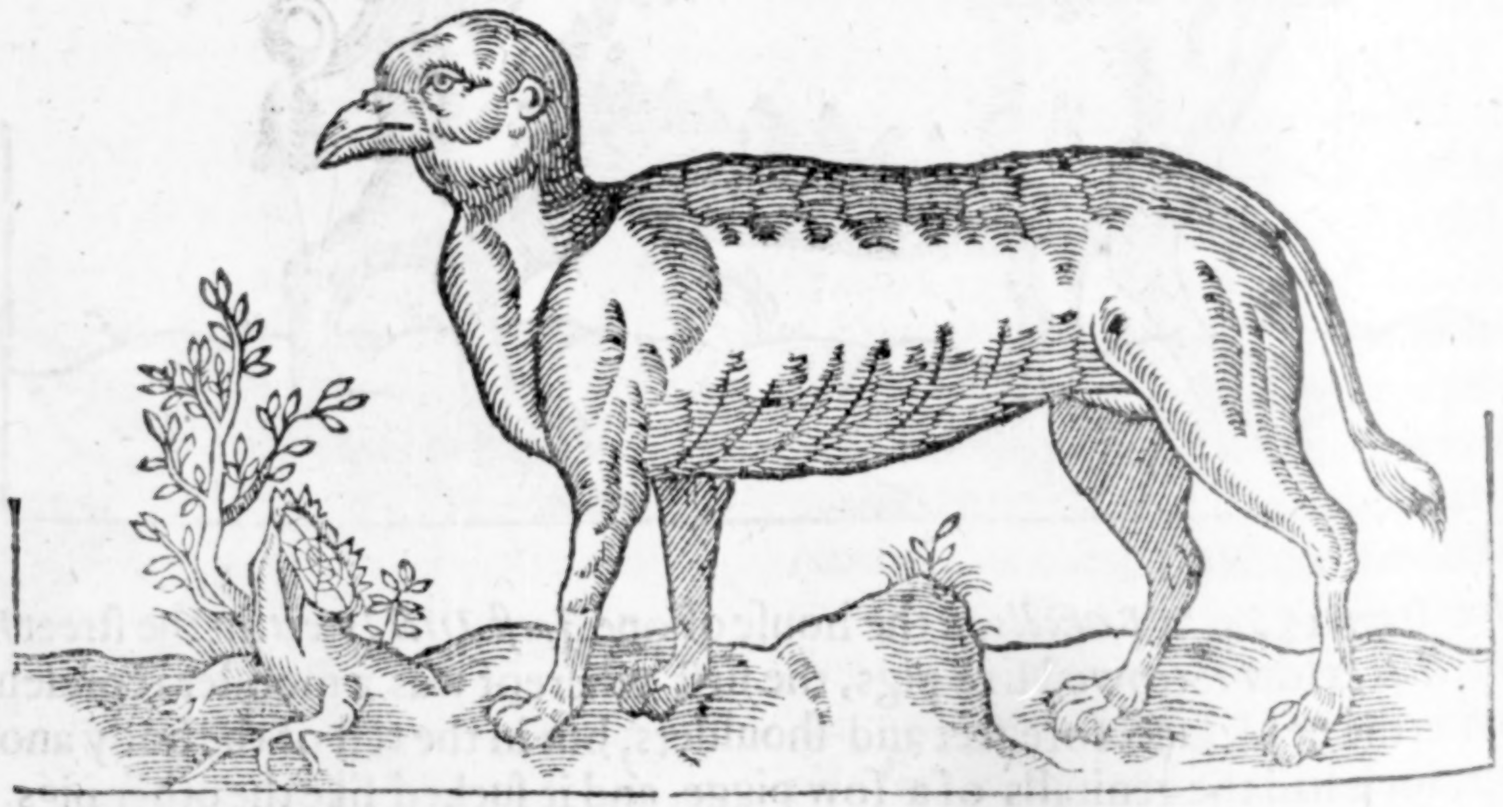
Anno Dom. 1564. at *Bruxels*, at the houſe of one *Ioeſt Dictzpeert*, in the ſtreet *Warmoesbroects*, a ſow farrowed ſixe pigs, the firſt whereof was a monſter repreſenting a man in the head, face, fore feet and ſhoulders, but in the reſt of the body another pigge, for it had the genitalls of a ſow pigge, and it ſucked like the other pigs. But the ſecond day after it was farrowed, it was killed of the people together with the ſow, by reaſon of the monſtrouſneſſe of the thing. Here followeth the figure thereof.

The effigies of a monſter halfe man and halfe ſwine.



Anno Dom. 1571. at *Antwerpe*, the wife of one *Michaell* a Printer, dwelling with one *John Molline* a Graver or Carver, at the ſigne of the Golden Foot, in the *Cami-ſtrate*, on St. *Thomas* his day, at ten of the clocke in the morning, brought forth a monſter wholly like a dogge, but that it had a ſhorter necke, and the head of a bird, but without any feathers on it. This monſter was not alive, for that the mother was delivered before her time; but ſhe giving a great ſcritch in the inſtant of her deliverance, the chimney of the houſe fell downe, yet hurt nobody, no not ſo much as any one of foure little children that ſate by the fire ſide.

The figure of a monſter like a dogge, but with a head like a bird.



Lewis Celleus writeth that hee hath read in an approved author, that an Ewe once brought forth a Lion, a beaſt of an unlike and adverſe nature to her.

Anno Dom. 1577. in the towne *Blandy*, three miles from *Melon*, there was lambed a Lambe, having three heads, the middlemoſt of which was bigger than the reſt, when one bleated they all bleated. *John Bellanger* the Chirurgian of *Melon* affirmed that hee ſaw this monſter, and he got it drawne, and ſent the figure thereof to mee, with that humane monſter that had the head of a Frogge, which we have formerly deſcribed.

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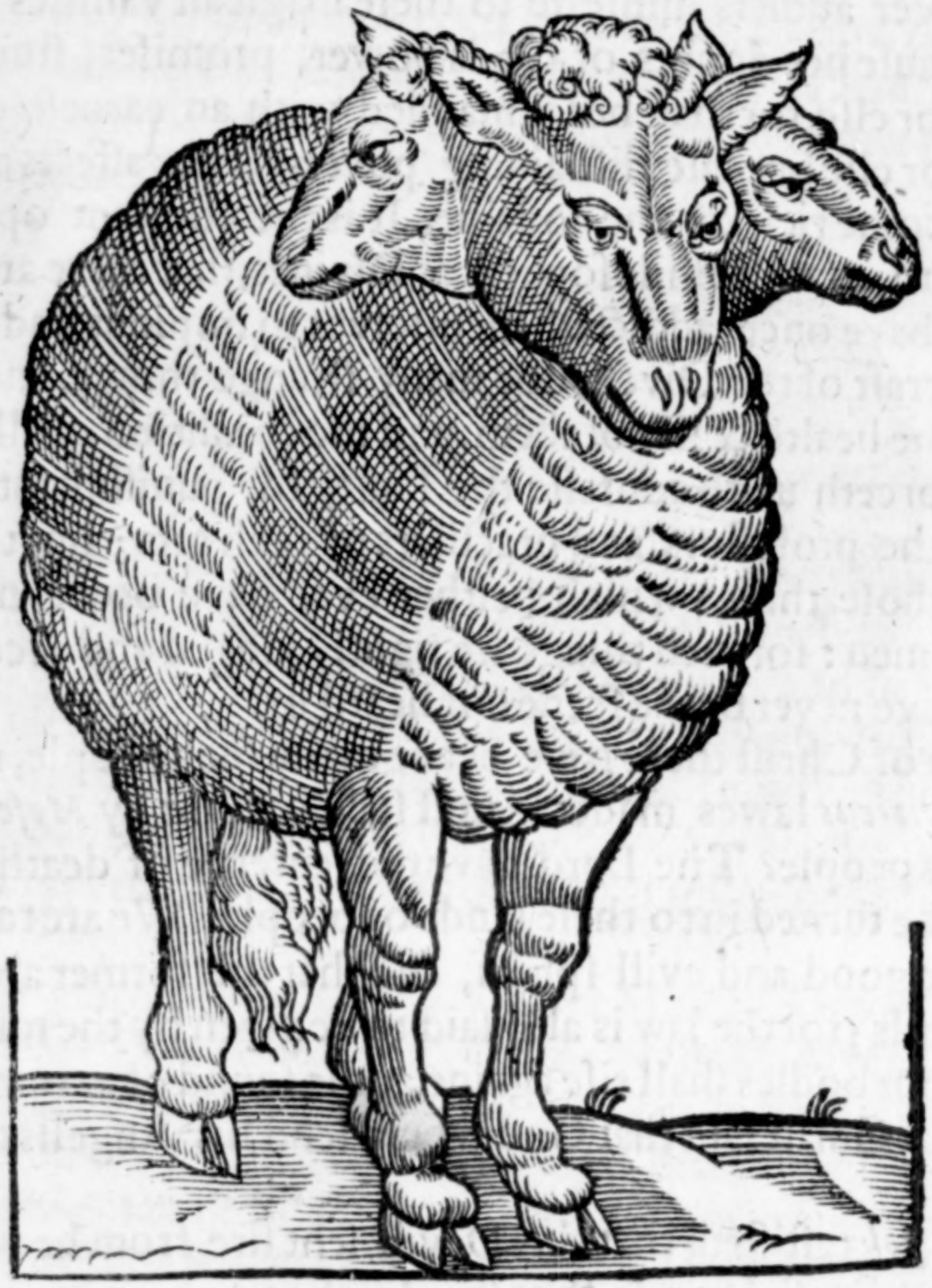
The figure of a three-headed Lambe.



There are ſome monſters in whoſe generation by this there may ſeeme to be ſome divine cauſe, for that their beginnings cannot be derived or drawne from the generall cauſe of monſters, that is, nature, or the errors thereof, by reaſon of ſome of the forementioned particular cauſes: ſuch are theſe monſters that are wholly againſt all nature, like that which we formerly mentioned, of a Lion yeaned by an Ewe.

Yet Aſtrologers (leſt there ſhould ſeeme to be any thing which they are ignorant of) referre the cauſes of theſe to certaine conſtellations and aſpects of the Planets and Stars, according to *Ariſtotles* ſaying in his Problemes; in confirmation whereof they tell this tale. It happened in the time of *Albertus Magnus,* that in a certaine village, a Cow brought forth a Calfe, which was halfe a man: the towneſmen apprehended the heardſ-man, and condemned him as guilty of ſuch a crime, to be preſently burnt together with the cow; but by good lucke *Albertus* was there, to whom they gave credit by reaſon of his much and certaine experience in Aſtrologie, that it was not occaſioned by any humane wickedneſſe, but by the efficacy of a certaine poſition of the ſtarres, that this monſter was borne.

CHAP. XIII.

Of monſters occaſioned by the craft and ſubtlety of the Devill.

IN treating of ſuch monſters as are occaſioned by the craft of the Devill, wee crave pardon of the courteous Reader, if peradventure going further from our purpoſe, wee may ſeeme to ſpeake more freely and largely of the exiſtence, nature, and kindes of Devills. Therefore firſt it is manifeſt that there are Conjurers, Charmers, and Witches, which whatſoever they do, performe it by an agreement & compact with the Devill, to whom they have addicted themſelves: for none can be admitted into that ſociety of Witches, who

There are ſorcerers, and how they come ſo to be.

What induceth them thereto.

hath not forſaken God the Creator, and his Saviour, and hath not transferred the worſhip due to him above, upon the Devill, to whom he hath obliged himſelfe. And aſſuredly, whoſoever addicts himſelfe to theſe magicall vanities and witch-crafts, doth it, either becauſe hee doubts of Gods power, promiſes, ſtudy and great good will towards us: or elſe for that hee is madded with an earneſt deſire of knowing things to come; or elſe becauſe diſdaining poverty, hee affects and deſires from a poore eſtate to become rich on the ſodaine. It is the conſtant opinion of all, both ancient and modern, as well Philoſophers as Divines, that there are ſome ſuch men; which when they have once addicted themſelves to impious and divelliſh arts, can by the wondrous craft of the Divell, doe many ſtrange things, and change and corrupt bodies, and the health & life of them, and the condition of all mundane things. Alſo experience forceth us to confeſſe the ſame, for puniſhments are ordained by the lawes againſt the profeſſors and practiſers of ſuch arts; but there are no lawes ordained againſt thoſe things which neither ever have beene, nor ever came into the knowledge of men: for ſuch things are rightly judged and accounted for impoſſibilities, which have never beene ſeene nor heard of.

Exod. cap. 22.
Levit. cap. 19.
Hebr. 1. 14.
Galat. 3. 19.
1 Theſ. 4. 16.

Before the birth of Chriſt there have beene many ſuch people, for you may finde in *Exodus* and *Leviticus* lawes made againſt ſuch perſons by *Moſes*, by whom God gave the law to his people. The Lord gave the ſentence of death to *Ochaſias* by his Prophet, for that he turned in to theſe kinde of people. We are taught by the ſcriptures that there are good and evill ſpirits, and that the former are termed Angells, but the latter Devills; for the law is alſo ſaid to be given by the miniſtry of Angels: and it is ſaid that our bodies ſhall riſe againe at the ſound of a trumpet, and the voice of an Arch-angell. Chriſt ſaid that God would ſend his Angells to receive the elect into the heavens.

John 13.
Mar. 26. 34.

The hiſtorie of *Job* teſtifieth that the Devill ſent fire from heaven, and killed his ſheep and cattell, and raiſed winds that ſhooke the foure corners of the houſe, and overwhelmed his children in the ruines thereof. The hiſtory of *Achab* mentioneth a certaine lying ſpirit in the mouth of the falſe Prophets. Sathan entring into *Judas*, moved him to betray Chriſt. Devils, who in a great number poſſeſſed the body of a man, were called a Legion, and obtained of Chriſt that they might enter into ſwine, whom they carried headlong into the Sea.

The power of evill ſpirits over mankind.

The differences of devills.

In the beginning God created a great number of Angells, that thoſe divine and incorporeall ſpitits might inhabite heaven, and as meſſengers, ſignifie Gods pleaſure to men, and as miniſters or ſervants, performe his commands, who might be as overſeers and protectors of humane affaires. Yet of this great number there were ſome who were blinded by pride, and thereby alſo caſt downe from the preſence, and heavenly habitation of God the creator. Theſe harmefull and crafty ſpirits delude mens mindes by divers jugling trickes, and are alwaies contriving ſomething to our harme, and would in a ſhort ſpace deſtroy mankinde, but that God reſtraines their fury; for they can onely doe ſo much as is permitted them: Expelled heaven, ſome of them inhabite the aire, others, the bowels of the earth, there to remaine untill God ſhall come to judge the world: and as you ſee the clouds in the aire ſomewhiles to reſemble centaures, otherwhile ſerpents, rocks, towers, men, birds, fiſhes, and other ſhapes: ſo theſe ſpirits turne themſelves into all the ſhapes and wondrous formes of things; as oft times into wild beaſts, into ſerpents, toads, owles, lapwings, crowes or ravens, goats, aſſes, dogs, cats, wolves, buls, and the like. Moreover, they oft times aſſume and enter humane bodies, as well dead as alive, whom they torment and puniſh, yea alſo they transforme themſelves into angells of light.

The deluſions of devills.

They feigne themſelves to bee ſhut up and forced by magicall rings, but that is onely their deceit and craft, they wiſh, feare, love, hate, and oft times as by the appointment and decree of God they puniſh malefactors: for we read that God ſent evill angels into Egypt, there to deſtroy. They houle on the night, they murmure & rattle, as if they were bound in chaines, they move benches, tables, counters, props, cupboards, children in the cradles, play at tables and cheſſe, turne over books, tell mony, walk up & down roomes, and are heard to laugh, to open windowes & dores, caſt ſounding veſſels, as braſſe and the like, upon the ground, breake ſtone pots and glaſſes, and make other the like noiſes. Yet none of all theſe things appeare to us when as wee ariſe in the morning, neither finde we any thing out of its place or broken. They are called by divers names; as, Devills, evill Spirits, *Incubi*, *Sucubi*, Hobgoblines, Fairies, Robin-good-fellowes, evill Angels, Sathan, Lucifer, the father of lies, Prince of darkeneſſe and of the world, Legion, and other names agreeable to their offices and natures.

Their titles & names.

Chap. XIV.

Of the ſubterrene Devills, and ſuch as haunt Mines.

Lewis *Lavater* writes, that by the certaine report of ſuch as worke in Mines, that in ſome Mines there are ſeene ſpirits, who in the ſhape and habite of men, worke there, and running up and downe ſeeme to doe much worke, when as notwithſtanding they doe nothing indeed. But in the meane time they hurt none of the by-ſtanders, unleſſe they bee provoked thereto by words, or laughter. For then they will throw ſome heavie or hard thing upon him that hurt them, or injure them ſome other way.

What the devills in Mines doe.

The ſame author affirmes that there is a ſilver Mine in *Rhetia*, out of which *Peter Briot*, the Governour of the place, did in his time get much ſilver. In this Mine there was a Devill, who chiefly on Frie-dayes, when as the Miners put the minerall they had digged into tubbes, kept a great quarter, and made himſelfe exceeding buſie, and poured the minerall, as he liſted, out of one tubbe into another. It happened one day that he was more buſie than he uſed to be, ſo that one of the Miners reviled him, and bad him bee gone on a vengeance to the puniſhment appointed for him. The Devill offended with his imprecation and ſcoffe, ſo wreſted the Miner, taking him by the head, that twining his necke about, hee ſet his face behinde him, yet was not the workman killed therewith, but lived, and was known by divers for many yeeres after.

Chap. XV.

By what meanes the Devills may deceive us.

Our mindes involved in the earthy habitation of our bodies, may bee deluded by the Devills divers waies; for they excell in purity and ſubtlety of eſſence, and in the much uſe of things: beſides, they challenge a great preheminence, as the Princes of this world, over all ſublunary bodies. Wherefore it is no marvell if they, the teachers and parents of lyes, ſhould caſt clouds and miſts before our eyes from the beginning, & turne themſelves into a thouſand ſhapes of things and bodies, that by theſe juglings and trickes they may ſhadow and darken mens mindes.

Devills are ſpirits, and from eternity.

Chap. XVI.

Of Sucubi *and* Incubi.

Powerfull by theſe forementioned arts and deceipts, they have ſundry times accompanied with men in copulation, whereupon ſuch as have had to doe with men, were called *Sucubi*, thoſe which made uſe of women, *Incubi*. Verily St. *Auguſtine* ſeemeth not to be altogether againſt it, but that they, taking upon them the ſhape of man, may fill the genitalls

The reaſon of the name. *Lib. 15. de civit Dei, cap. 22, & 23.*

talls, as by the helpe of nature, to the end, that by this meanes they may draw aſide the unwary, by the flames of luſt, from vertue and chaſtity.

A hiſtory.

John Ruef in his book of the conception and generation of man, writes that in his time, a certaine woman of monſtrous luſt, and wondrous impudency, had to doe by night with a Divell, that turned himſelfe into a man, and that her belly ſwelled up preſently after the act; and when as ſhe thought ſhee was with childe, ſhe fell into ſo grievous a diſeaſe, that ſhee voided all her entrailes by ſtoole, medicines nothing at all prevailing.

Another.

The like hiſtory is told of the ſervant of a certaine Butcher, who thinking too attentively on venereous matters, a Divell appeared to him in the ſhape of a woman, with whom (ſuppoſing it to bee a woman) when as hee had to doe, his genitalls ſo burned after the act, that becomming enflamed, hee died with a great deale of torment.

An opinion confuted.

Neither doth *Peter Paludanus*, and *Martin Arelatenſis* thinke it abſurd to affirme that Devills may beget children, if they ſhall ejaculate into the womans womb ſeed taken from ſome man, either dead or alive. Yet this opinion is moſt abſurd and full of falſitie, mans ſeed conſiſting of a ſeminall or ſanguineous matter, and much ſpirit: if it runne otherwaies than into the wombe from the teſticles, and ſtay never ſo little a while, it loſeth its ſtrength and efficacy, the heat and ſpirits vaniſhing away; for even the too great length of a mans yard, is reckoned amongſt the cauſes of barrenneſſe, by reaſon that the ſeed is cooled by the length of the way. If any in copulation, after the ejaculation of the ſeed, preſently draw themſelves from the womans embraces, they are thought not to generate, by reaſon of the aire entring into the yet open womb, which is thought to corrupt the ſeed. By which it appeares how falſe that hiſtory in *Averrois* is, of a certaine woman that ſaid ſhe conceived with child by a mans ſeed ſhed in a bath, and ſo drawne into her wombe, ſhe entring the bath preſently after his departure forth. It is much leſſe credible that Divells can copulate with women, for they are of an abſolute ſpirituous nature, but blood and fleſh are neceſſary for the generation of man. What naturall reaſon can allow that the incorporeall Divells can love corporeall women? And how can we thinke that they can generate, who want the inſtruments of generation? How can they who neither eate nor drinke be ſaid to ſwell with ſeed? Now where the propagation of the ſpecies is not neceſſary to bee ſupplied by the ſucceſſion of Individuals, Nature hath given no deſire of venery, neither hath it imparted the uſe of generation; but the divels once created were made immortall by Gods appointment: If the faculty of generation ſhould be granted to devills, long ſince all places had beene full of them. Wherefore if at any time women with childe by the familiarity of the devill, ſeeme to travell, we muſt thinke it happens by thoſe arts we mentioned in the former chapter, to wit, they uſe to ſtuffe up the bodies of living women with old clouts, bones, pieces of iron, thornes, twiſted haires, pieces of wood, ſerpents, and a world of ſuch trumpery, wholly diſſenting from a womans nature: who afterwards, the time, as it were, of their delivery drawing nigh, through the wombe of her that was falſly judged with child, before the blinded, and, as it were, bound up eyes of the by-ſtanding women, they give vent to their impoſtures. The following hiſtory, recorded in the writings of many moſt credible authors, may give credit hereto.

Averrois his hiſtory convict of falſhood.

The illuſions of the devills.

A hiſtory.

There was at *Conſtance* a faire damoſell called *Margaret*, who ſerved a wealthy Citizen: ſhe gave it out every where that ſhe was with child by lying with the devill on a certaine night. Wherefore the Magiſtrates thought it fit ſhe ſhould bee kept in priſon, that it might bee apparent both to them and others, what the end of this exploit would bee. The time of deliverance approaching, ſhee felt paines like thoſe which women endure in travell; at length, after many throwes, by the midwives helpe, in ſtead of a childe, ſhee brought forth iron nailes, pieces of wood, of glaſſe, bones, ſtones, haires, towe, and the like things, as much different from each other, as from the nature of her that brought them forth, and which were formerly thruſt in by the devill to delude the too credulous mindes of men.

Our ſins are the cauſe that the devils abuſe us.

The Church acknowledgeth that devils, by the permiſſion and appointment of God puniſhing our wickedneſſe, may abuſe a certaine ſhape, ſo to uſe copulation with mankinde. But that a humane birth may thence ariſe, it not onely affirmes to bee falſe, but deteſts as impious, as which beleeves that there was never any man begot without the ſeed of man, our Saviour Chriſt excepted. Now what confuſion and perturbation of creatures ſhould poſſeſſe this world (as *Caſſianus* ſaith) if divells could conceive by copulation with men? or if women ſhould prove with childe by accompanying them, howmany monſters would the divells have brought forth from the beginning of the world? how many prodigies by caſting their ſeed into the wombes of wilde and brute beaſts? for by the opinion of Philoſophers, as often as faculty and will concurre, the effect muſt neceſſarily follow: now the Devils never have wanted will to diſturbe mankinde, and the order of this world: for the devill, as they ſay, is our enemy from the beginning; and as God is the author of order, and beauty, ſo the devill, by pride, contrary to God, is the cauſer of confuſion and wickedneſſe.

Wherefore if power ſhould accrew equall to his evill minde and nature, and his infinite deſire of miſchiefe and envie, who can doubt but a great confuſion of all things and ſpecies, and alſo great deformity would invade the decent and comely order of this univerſe, monſters ariſing on every ſide? But ſeeing that devills are incorporeall, what reaſon can induce us to beleeve that they can be delighted with venereous actions? and what will can there be where as there is no delight, nor any decay of the ſpecies to be feared? ſeeing that by Gods appointment they are immortall, ſo to remaine for ever in puniſhment: ſo what need they ſucceſſion of individualls by generation? wherefore if they neither will nor can, it is a madneſſe to thinke that they doe commixe with man.

CHAP. XVII.

Of Magicke and ſupernaturall diſeaſes and remedies.

That I may refreſh the mind of the Reader, invited to theſe hiſtories of monſters, raiſed up by the art of the divell, witches, and conjurers, his ſervants, I have thought good to add the following hiſtories of certaine diſeaſes, and remedies ſupernaturall, and wholly magicall, out of *Fernelius*. There are diſeaſes, which as they are ſent amongſt men by God being offended, ſo they cannot expect cure otherwiſe than from God, from whence they are thought ſupernaturally to have their eſſence and cure. Thus the aire oft-times, yet chiefly in the time of King *David*, being defiled with the peſtilence, killed ſixty odde thouſand perſons.

Lib. 2. de abdit. cauſ. cap. 16.

Thus *Ezechias* was ſtrucke with a grievous diſeaſe: *Job* was defiled with filthy ulcers by Sathan at Gods command. And as the Devill, the cruell enemy of mankinde, commonly uſeth by Gods permiſſion to afflict thoſe, ſo wicked perſons by the wondrous ſubtlety of the devill, offer violence, and doe harme to many. Some invoke I know not what ſpirits, and adjure them with herbes, exorciſmes, imprecations, incantations, charmes: others hang about their neckes, or otherwiſe carry certaine writings, characters, rings, images, and other ſuch impious ſtuffe. Some uſe ſongs, ſounds or numbers: ſometimes potions, perfumes, and ſmells; ſometimes geſtures and jugling. There be ſome that make the portraiture of the abſent party in waxe, and boaſt that they can cauſe or bring a diſeaſe into what ſoever part thereof they prick, by the force of their words and ſtarres, into the like part of the party abſent; and they have no few other tricks to bring diſeaſes.

Witches hurt by the devills aſſiſtance.

We know for certain that magicians, witches, and conjurers, have by charmes ſo bound ſome, that they could not have to do with their wives; and have made others ſo impotent, as if they had bin gelt or made eunuches. Neither do wicked men onely ſend diſeaſes into mans body, but alſo devills themſelves. Theſe truely are ſoone diſtracted with a certain fury, but in this one thing they differ from ſimple madneſſe, for that they ſpeake things of great difficulty, tell things paſt and hid, diſcloſe the

ſecrets

ſecrets of ſuch as are preſent, and revile them many waies, and are terrified, tremble or grow angry by the power of divine words.

A hiſtory.

One not very long agone, being by reaſon of heat exceeding dry in the night time, riſing out of his ſleep, and not finding drinke, took an apple that he found by chance, and eating it, he thought his jawes were ſhut and held faſt as by ones hands, and that he was almoſt ſtrangled: and alſo, now poſſeſſed of a Devill entring into him, hee ſeemed in the darke to bee devoured of a huge exceeding blacke dogge, which hee, afterwards reſtored to his former health, orderly related to me. There were divers, who by his pulſe, heat, and the roughneſſe of his tongue, thought him to be in a feaver, and by his watching, and the perturbation of his minde, thought him onely to rave.

A hiſtory.

Another young Noble-man, ſome few yeeres ſince, was troubled at ſet times with a ſhaking of the body, and as it were, a convulſion, wherewith one while hee would move onely his left arme, another while the right arme, and alſo ſometimes but one finger onely, ſomewhiles but one legge, ſometimes the other, and at other times the whole trunk of his body, with ſuch force and agility, that lying in his bed, he could ſcarce be held by foure men; his head lay without any ſhaking, his tongue and ſpeech was free, his underſtanding ſound, and all his ſenſes perfect even in the height of his fit. He was taken at the leaſt ten times a day, well in the ſpaces between, but wearied with labour: it might have beene judged a true Epilepſie, if the underſtanding and ſenſes had failed.

monſterous Tale

The moſt judicious Phyſitians who were called to him, judged it a convulſion, coſen-germane to the falling ſickeneſſe, proceeding from a maligne and venemous vapour impact in the ſpine of the backe, whence a vapour diſperſed it ſelfe over all the nerves, which paſſe from the ſpine every way into the limbes, but not into the braine. To remove this, which they judged the cauſe, frequent glyſters are ordained, and ſtrong purges of all ſorts, cupping glaſſes are applied to the beginnings of the nerves, fomentations, unctions, emplaſters, firſt to diſcuſſe, then to ſtrengthen and weare away the maligne quality: Theſe things doing little good, he was ſweated with bathes, ſtoves, and a decoction of *Guajacum*, which did no more good than the former, for that wee were all farre from the knowledge of the true cauſe of his diſeaſe: for in the third moneth, a certaine Devill was found to be the author of all this ill, bewraying himſelfe by voice, & unaccuſtomed words and ſentences, as well latine as greeke (though the patient were ignorant of the greeke tongue): he laied open many ſecrets of the by-ſtanders, but chiefly of the Phyſitians, deriding them for that hee had abuſed them to the patients great harme, becauſe they had brought his body ſo low by needleſſe purgations.

The devill ſhewes himſelfe by ſpeaking of greeke.

When his father came to viſite him, he would cry out long before he came at him, or ſaw him, drive away this viſitant, & keep him from comming in here, or elſe pluck his chaine from about his necke: for on this (as it is the cuſtome of the French order of Knights) there hangs the image of St. *Michael*. If holy or divine things were read before him, he ſhooke and trembled more violently. When his fit was over, hee remembred all that he had done, and affirmed that hee did it againſt his will, and that he was ſorry for it. The devill, forced by ceremonies and exorciſmes, denied that he was damned for any crime, and ſaid that he was a ſpirit: being asked who he was, and by what meanes and power he did theſe things, he ſaid that hee had many habitations into which hee could betake him ſelfe, and in the time of his reſt, hee could torment others: that he was caſt into this body by a certain perſon whom he would not name, and that he entred by his feet up to his necke, and that he would go forth againe the ſame way, when as his appointed time was come. He ſpoke of ſundry other things, as others which are poſſeſſed uſe to doe.

Devils wax angry, and are terrifyed by divine things.

Now I ſpeake not theſe things as new or ſtrange, but that it may appeare that devills ſometimes entring into the body, doe ſomewhiles torment it by divers and uncouth waies; other whiles they doe not enter in, but either agitate the good humours of the body, or draw the ill into the principall parts, or with them obſtruct the veins or other paſſages, or change the ſtructure of the inſtruments, from which cauſes innumerable diſeaſes proceed: of theſe, Divells are the authors, and wretched and forlorne perſons the miniſters: and the reaſon of theſe things is beyond the ſearch of nature.

Pliny tells that the Emperour *Nero* in his time, found magicall arts moſt vain and falſe: but what need we alledge profane writers, when as thoſe things that are recorded in ſcripture of the pythoniſſe, of the woman ſpeaking in her belly, of King *Nebuchodonozor*, of the Magitians of *Pharaoh*, and other ſuch things not a few, prove that there both is, and hath beene Magicke? *Pliny* tells of *Denarchus*, that he taſting of the entrailes of a ſacrificed childe, turned himſelfe into a Wolfe. We read in *Homer* that *Circes*, in the long wandering of *Ulyſſes*, changed his companions into beaſts, with an inchanted cuppe or potion: and in *Virgil*, that the growing corne may bee ſpoiled or carried away by inchantments: which things, unleſſe they were approved and witneſſed by many mens credits, the wiſedome of Magiſtrates and Lawyers, would not have made ſo many Lawes againſt Magitians, neither would there have beene a mulct impoſed upon their heads by the law of the twelve tables, who had enchanted other mens corne. But as in magicall arts the devill doth not exhibite things them ſelves, as thoſe which he cannot make, but onely certaine ſhewes or appearances of things: ſo in theſe which are any wayes accommodated to the uſe of Phyſicke, the cure is neither certaine, nor ſafe, but deceitfull, captious, and dangerous.

I have ſeene the Jaundiſe, over the whole body, cured in one night, by a written ſcroule hanged about the neck: alſo I have ſeene Agues chaſed away by words and ſuch ceremonies, but within a ſhort while after they returned againe and became much worſe. Now there are ſome vaine things, and verily the fancies of old women, which becauſe they have long poſſeſſed the minds of men, weakened with too much ſuperſtition, we terme them ſuperſtitious. Theſe are ſuch as we cannot truely ſay of them, wherefore and whence they have the faculties aſcribed to them: for they neither ariſe from the temperament, neither from other manifeſt qualities, neither from the whole ſubſtance, neither from a divine or magicall power, from which two laſt mentioned, all medicines beyond nature, and which are conſequently to be uſed to diſeaſes, whoſe eſſence are ſupernaturall, muſt proceed. Such like old wives medicines and ſuperſtitious remedies are written figures and characters, rings, where neither the aſſiſtance of God or Spirits is implored. Let me aske you, is it not a ſuperſtitious medicine to heale the falling ſickeneſſe, to carry in writing the names of the three Kings, *Gaſpar, Melchior*, and *Balthaſar*, who came to worſhip Chriſt? To help the tooth ache, if one whilſt Maſſe is in ſaying, touch his teeth, ſaying theſe words, *Os non comminuetis ex eo*? To ſtay vomiting with certaine ceremonies and words, which they abſent pronounce, thinking it ſufficient if that they but onely know the patients name.

It is but a deceitfull cure that is performed by the devill.

Old-wives ſuperſtitious medicines againſt divers diſeaſes.

I ſaw a certaine fellow that with murmuring a few words, and touching the part, would ſtanch blood out of what part ſoever it flowed: there be ſome who to that purpoſe ſay this, *De latere ejus exivit Sanguis & Aqua.* How many prayers or charmes are carried about to cure agues? ſome taking hold of the patients hand, ſay, *Æquè facilis tibi Febris hæc ſit, atque Mariæ virgini Chriſti partus.* Another waſheth his hands with the patient before the fit, ſaying to himſelfe that ſolemne Pſalme, *Exaltabo te Deus meus Rex*, &c. If one tell an Aſſe in his eare that hee is ſtung by a Scorpion, they ſay that the danger is immediately over.

As there are many ſuperſtitious words, ſo there are many ſuperſtitious writings alſo. To helpe ſore eyes, a paper wherein the two greeke letters, Π and Α, are written muſt bee tyed in a thred, and hanged about the necke. And for the tooth ache this ridiculous ſaying, *Strigiles, falceſque dentatæ, dentium dolorem perſanate.* Alſo oft times there is no ſmall ſuperſtition in things that are outwardly applied. Such is that of *Apollonius* in *Pliny*, to ſcarifie the gummes in the tooth ache with the tooth of one that died a violent death: to make pils of the skull of one hanged, againſt the bitings of a mad dogge: to cure the falling ſickeneſſe by eating the fleſh of a wilde beaſt, killed with the ſame iron wherewith a man was killed: that he ſhall be freed from a quartaine ague who ſhall drinke the wine whereinto the ſword that hath cut off a mans head, ſhall be put: and he, the parings of whoſe nailes ſhall be tyed in a linnen cloth to the necke of a quicke Eele, and the Eele let goe into the water againe. The paine of the Milt to be aſſwaged, if a beaſts Milt bee laid upon it, and the Phyſitian ſay that he cures or makes a medicine for the Milt. Any one to bee freed from the cough, who ſhall ſpit in the mouth of a Toad, letting her goe away alive. The halter wherein one hath beene hanged put about the temples, to helpe the head ache. This word *Abracadabra*, written on a paper, after the manner deſcribed by *Serenus*, and hanged about the necke, to help agues or feavers, eſpecially ſemitertians. What truth can bee in that which ſundry affirme, that a leafe of *Lathyris*, which is a kinde of Spurge, if it be plucked upwards, will cauſe vomit, but broken downewards, will move to ſtoole? You may alſo finde many other ſuperſtitious fictions concerning herbes, ſuch as *Galen* reports that *Andreas* and *Pamphilus* writ, as incantations, tranſformations, and herbes dedicated to conjurers and devills.

Lib. 6. de ſimp.

I had thought never in this place to have mentioned theſe and the like, but that there may bee every where found ſuch wicked perſons, who leaving the arts and means, which are appointed by God to preſerve the health of mans body, flye to the ſuperſtitious & ridiculous remedies of ſorcerers, or rather of devils, which notwithſtanding the devill ſometimes makes to performe their wiſht for effects, that ſo hee may ſtill keep them enſnared & addicted to his ſervice. Neither is it to be approved which many ſay, that it is good to be healed by any art or meanes, for that healing is a good worke. This ſaying is unworthy of a Chriſtian, and ſavours rather of him that truſts more in the devill than in God. Thoſe Empericks are not of the ſociety of Sorcerers and Magitians, who heale ſimple wounds with dry lint, or lint dipt in water: this cure is neither magicall nor miraculous, as many ſuppoſe, but wholly naturall, proceeding from the healing fountains of nature, wounds & fractures, which the Chirurgian may heale by onely taking away the impediments, that is, paine, defluxion, inflammation, an abſceſſe and gangrene, which retard and hinder the cure of ſuch diſeaſes. The following examples will ſufficiently make evident the devils maliciouſneſſe, alwaies wickedly and craftily plotting againſt our ſafety and life.

Lib. epiſt. 38. ep. A certaine woman at *Florence* (as *Langius* writes) having a maligne ulcer, and being troubled with intolerable paine at the ſtomacke, ſo that the Phyſitians could give her no eaſe: behold on a ſudden ſhee vomited up long and crooked nailes, and braſſe needles, wrapped up with wax and haires, and at length a great gobbit of fleſh, ſo bigge that a Giants jawes could ſcarce ſwallow it.

But that which happened in the yeere of our redemption 1539. in a certain town called *Fugenſtall*, in the Biſhopricke of *Eiſtet*, exceeds all credit, unleſſe there were eye-witneſſes of approved integrity yet living. In this towne, one *Ulrich Neuſeſſer* a husbandman, was tormented with grievous paine in the one ſide of his belly, hee ſodainely got hold of an iron key with his hand under the ſkinne, which was not hurt, the which the Barber-Chirurgian of the place cut out with his razour; yet for all this the paine ceaſed not, but hee grew every day worſe than other: wherefore expecting no other remedy but death, he got a knife and cut his throat. His dead body was opened, and in his ſtomacke were found a round and longiſh piece of wood, foure ſteele knives, part ſharpe, and part toothed like a ſaw, and two ſharpe peices of iron, each whereof exceeded the length of a ſpanne, there was alſo as it were a ball of haire. All theſe things were put in by the craft and deceit of the devill. Thus farre *Langius*.

Chap. XVIII.

Of the Cozenages and crafty Trickes of Beggars.

HAving treated of Monſters, it followes that wee ſpeake of thoſe things which either of themſelves, by reaſon of their nature full of admiration, have ſome kinde of monſtrouſneſſe in them; or elſe from ſome other waies, as by the craft and cozenage of men. And becauſe to the laſt mentioned crafts of the Devill, the ſubtle devices of begging companions are ſo wewhat alike, therefore I will handle them in the next place, that the Chirurgian being admoniſhed of them, may be more cautious and cunning in diſcerning them when hee meets with them.

A hiſtory of a counterfeit arme.

Anno Dom. 1525. when I was at *Anjou*, there ſtood a crafty beggar begging at the Church dore, who tying and hiding his owne arme behind his backe, ſhewed in ſteed thereof, one cut from the body of one that was hanged, and this he propped up and bound to his breaſt, and ſo laid it open to view, as if it had been all enflamed, ſo to move ſuch as paſſed by unto greater commiſeration of him. The cozenage lay hid, every one giving him mony, untill at length his counterfeit arm not being ſurely faſtened, fell upon the ground, many ſeeing and obſerving it: hee being apprehended and layed in priſon, by the appointment of the Magiſtrate, was whipped through the towne, with his falſe arme hanging before him, and ſo baniſhed.

Another of a cancrous breaſt

I had a brother called *John Parey*, a Chirurgian, who dwelt at *Vitre* in *Britany*; he once obſerved a young woman begging, who ſhewed her breaſt, as if it had a cancrous ulcer thereon, looking fearfully by reaſon of much and ſordid filth, wherewith it ſeemed to defile the cloath that lay under it. But when as hee had more diligently beheld the womans face, and the freſh colour thereof, as alſo of the places about the ulcer, and the good habite of the whole body agreeable to that colour (for ſhe was ſomewhat fat, and of a very good habite of body) he was eaſily hereby induced to ſuſpect ſome roguery and deceit. He acquainted the Magiſtrate with this his ſuſpicion, and got leave that hee might carry her home to his houſe, ſo to ſearch her more narrowly. Where opening her breaſt, he found under her arme-pit, a ſponge moiſtened with a commixture of beaſts blood and milke, and carried through an elder pipe to the hidden holes of her counterfeit cancer. Therefore he foments her breaſt with warme water, and with the moiſture thereof looſeth the skinnes of blacke, greene, and yellow frogges, laid upon it, and ſtucke together with glew, made of bole armenick, the white of an egge, and flower; and theſe being thus fetched off, he found her breaſt perfectly ſound.

A counterfeit ulcer of the leg

The beggar being caſt for this into priſon, confeſſed that ſhee was taught this tricke by a beggar that lay with her, who himſelfe alſo, by putting about his legge an oxes Milt, and perforating it in ſundry places, that ſo the forementioned liquor might drop out, counterfeited an ulcer of a monſtrous bigneſſe and malignity, covering the edges of the Milt on every ſide with a filthy cloath. This beggar was diligently enquired after, but could not bee found; and ſo ſhee was whipped and baniſhed.

Of one feigning himſelfe leprous.

Within leſſe than a yeere after there came into the ſame city another notable crafty companion, who preſently taking up the church doores, laid open his wares, to wit, a Kercher with ſome ſmall pieces of mony lying thereon, a wooden Barrell, and * Cliquets, wherewith he would ever now and then make a great noiſe: his face was ſpread over with great thicke puſtles, being of a blackiſh red colour, and made with glew like thoſe that have the Leproſie: this his ghaſty look made him to be pitied by all men, which was the cauſe that every one gave him mony. Then my brother came ſomewhat nearer him, and asked him how long hee had beene troubled with this ſo cruell diſeaſe; hee anſwered with an obſcure and hoarſe voice, that hee was borne a Leper from his mothers wombe, and that his parents both died of this wicked diſeaſe, ſo that their members fell away piece-meale. Now hee had a woollen ſwathe about his chapps, wherewith (having his left hand under his cloake) hee ſo ſtraitened his chapps, that much blacke blood roſe into his face, and made him ſo hoarſe that he could ſcarce ſpeake; yet hee could not conteine himſelfe, but that in ſpeaking hee ever now and then ſlackened the ſwathe with his hand, the freelier to draw his breath: which when my brother had obſerved, ſuſpecting ſome cozenage, he obtained leave of the Magiſtrate to ſearch and examine the man whether hee were truely leprous, or no. Firſt therefore he tooke away his ſwathe or rowler that was about his necke, then waſhed his face with warme water, ſo that the counterfeit glewed puſtles were diſſolved, and his face, free from all taintnre, ſhewed it ſelfe of a good and naturall colour and ſhape. Then he laid bare his whole body, and diligently viewed each part, and found no ſigne of a leproſie, one or other. Which

when

* Cliquets are things made ſomewhat reſembling a ſmal wool-card, but have two or three little pieces of boords ſo faſtened together with leather, that they will make a great noiſe with them, and theſe are uſed by the French beggars.

when the Magiſtrate once heard, he made him to bee put in priſon, and to be thrice whipped through the ſtreets of the city, with his barrell hanging before him, and his cliquets behind him, adding thereto the puniſhment of perpetuall baniſhment. It happened that as hee was whipped the third market day, the people cryed out to the hang-man in jeſt, that he ſhould not feare to laſh him ſoundly, for being leprous he could not feele it: the executioner incited by this cry of the people, did ſo belabour him, that the wretch died of his whipping within a ſhort while after, having a juſt reward for his wickedneſs. For theſe impoſtors, beſides that they live like drones, feigning this or that diſeaſe, and ſo being idle, enjoy the fruits of others labours; they alſo divers times conſpiring together, take away the lives and goods of honeſt and ſubſtantiall citizens, and other people: for there are ſome of them, that in an evening, as men that have no habitation, deſire lodging for a night, and it being granted them, they, when as the maſter of the houſe and his family are aſleepe, open the doores to their comrades, men as wicked as themſelves, and kill and carry away all they can.

A multitude of beggars hurtfull to the city.

Certainly we may juſtly affirme that this crafty begging is the mother and ſchoole of all diſhoneſty: for how many acts of bawdry and poiſoning every where corrupt the wells and publicke fountaines? how many places have beene burnt under the ſhew of begging? where can you get more fit ſpies? where more fit undertakers and workers of all manner of villany, than out of the crew of theſe beggars?

How to diſcover ſuch as counterfeit the Jaundiſe.

Some of them there are, who beſmeare their faces with ſoot layed in water, ſo to ſeeme to have the Jaundiſe. But you may at the firſt ſight find out the deceit, by the native whiteneſſe of the utter coat of the eye, called *Adnata*, which in ſuch as truely have the Jaundiſe, uſeth to bee died and overcaſt with a yellowiſh colour; alſo you may be more certaine thereof, if you wet a cloath in water or ſpittle, and ſo rub the face, for the adventitious yellowneſſe will quickly vaniſh, and the true native colour ſhew it ſelfe.

Some there bee, who not content to have mangled, and filthily exulcerated their limbes with cauſticke herbs, and other cauteries; or to have made their bodies more ſwolne, or elſe leane, with medicated drinks; or to have deformed themſelves ſome other way, but from good and honeſt Citizens, who have charitably relieved them, they have ſtollen children, have broken or diſlocated their armes and legges, have cut out their tongues, have depreſſed the cheſt, or whole breaſt, that with theſe, as their owne children, begging up and downe the country, they may get the more reliefe, pitifully complaining that they came by this miſchance by thunder, or lightning, or ſome other ſtrange accident.

Laſtly they part the kingdome amongſt themſelves as into Provinces, & communicate by letters one to another, what newes or new quaint deviſes there are to conceale or advance their roguery: to which purpoſe they have invented a new language onely knowne to themſelves, ſo to diſcourſe together and not bee underſtood by others. [We here vulgarly terme it *Canting*].

Of one counterfeiting the falling of the fundament.

D^{r}. *Flecelle*, a Phyſitian of *Paris*, entreated me to beare him company to his country houſe at *Champigny*, foure miles from *Paris*. Where as ſoone as wee arrived, and were walking in the Court, there came preſently to us a good luſty well fleſht manly woman, begging almes for St. *Fiacre* ſake, and taking up her coat and her ſmocke, ſhee ſhewed a great gut hanging downe ſome halfe a foot, which ſeemed as if it had hanged out of her fundament, whereout there dropped filth like unto *pus*, which had all ſtained her legges and ſmocke, moſt beaſtly and filthy to looke upon. *Flecelle* asked her how long ſhe had beene troubled with this diſeaſe: ſhe anſwered that it was foure yeeres ſince ſhe firſt had it. Hence he eaſily gathered that ſhe plaied the counterfeit: for it was not likely that ſuch abundance of purulent matter came forth of the body of ſo well fleſht and coloured a woman; for ſhe would rather have been very leane and in a conſumption. Wherefore provoked with juſt anger, by reaſon of the wickedneſſe of the deceit, he run upon her and threw her downe upon the ground, and trod her under his feet, and hit her divers blowes upon the belly, ſo that he made the gut which hung at her to, come away, and by threatning her with more grievous puniſhment, made her confeſſe the cozenage, and that it was not her gut but of an oxe, which being filled with blood and milke, and tyed at both ends, ſhee put the one of them into her fundament, and let the filth flow forth at very little holes.

Not very long agoe, a woman equally as ſhameleſſe, offered herſelfe to the overſeers of the poore of *Paris*, entreating that ſhe might be entred for one of their Penſioners, for that her wombe was fallen downe by a dangerous and difficult birth, wherefore ſhe was unable to worke for her living. Then they commanded that ſhee ſhould be tryed and examined, according to the cuſtome, by the Chirurgians which are therefore appointed. Who ſeeing how the whole buſineſſe was carried, made report ſhe was a counterfeit; for ſhe had thruſt an oxes bladder, halfe blown and beſmeared with beaſtly blood by the neck, whereto ſhe had faſtned a little ſpunge, into the necke of her wombe, for the ſpunge being filled and ſwollen up by the accuſtomed moiſture of the wombe, ſo held up the oxes bladder that hanged thereat, that ſhe might ſafely goe without any feare of the falling of it out, neither could it be pulled forth but with good force. For this her device ſhee was put into Priſon, and being firſt whipped, was after baniſhed. Their cozenage is not much unlike this, who by fitly applying a ſheepes paunch to their groine, counterfeit themſelves to bee burſten.

Of one faigning the falling down of the wombe.

Anno Dom. 1561. there came to *Paris* a luſty, ſtout, and very fat Norman woman, being about ſome thirty yeeres old, who begging from doore to doore, did caſt to meet with rich women, and very familiarly and pitifully would relate unto them her misfortune, ſaying ſhe had a ſnake in her belly, which crept in at her mouth as ſhee ſlept in an hempe-land: ſhee would let one feele her ſtirre, by putting their hand unto her belly, adding alſo that ſhe was troubled day & night with its unceſſant gnawing of her guts. The novelty of this ſad chance, moved all to pity & admiration, wherefore as much as they could, they aſſiſted her with means & counſell. Amongſt the reſt, there was a woman of great devotion and charity, who ſending for Dr. *Hollerius*, *Chevall*, and mee, asked us if this ſnake could by any meanes be gotten forth. *Hollerius* gave her a ſtrong purgation, hoping that by ſtirring up the expulſive faculty, the ſerpent might be caſt forth, together with the noxious humors. But this hope had no ſuch ſucceſſe. Wherefore when as we met againe, wee thought it fit to put a *Speculum matricis* into the necke of her wombe, ſo to ſee if we could diſcerne either her head or taile: but I making large dilatation of her womb, could ſee no ſuch thing, onely wee obſerved a certaine voluntary motion, whereof ſhee her ſelfe was the author, by contracting and dilating the muſcles of the lower belly. Which when as we had obſerved, perceiving the deceit and impoſture, we thought good ſo to terrifie her and make her confeſſe the deceit, to tell her that ſhee muſt take another, but that a more ſtrong purgation, that what wee could not doe by the former, as more gentle, we might attaine to by the latter, as farre ſtronger. She diſſembling all feare, and conſcious of her craft and diſſimulation, after wee were gone in the evening, packing up her ſtuffe, and a great deale more than her owne, ſhe ſecretly ſtole away, not bidding her hoſteſſe farewell: and thus at length the fraud was apparent, to the loſſe of the honeſt Gentlewoman. I ſaw this baggage, ſixe daies after, ſitting luſtily upon a Packe-horſe, at the gate *Mont-martre*, and laughing heartily with ſuch as brought Sea-fiſh to towne; and ſhee was returning (as it was moſt likely) into her country, ſeeing her cozenage was diſcovered here.

Of a beggar that faigned her ſelfe to have a ſnake in her belly.

Such as feigne themſelves dumbe, draw backe and double their tongues in their mouths. Such as falling downe counterfeit the falling ſickeneſſe, bind ſtraitly both their Wreſts with plates of iron, tumble and rowle themſelves in the mire, ſprinkle and defile their heads and faces with beaſts blood, and ſhake their limbes and whole body. Laſtly by putting ſope into their mouths, they foame at the mouth like thoſe that have the falling ſickeneſſe. Otherſome with floure make a kind of glew, wherewith they beſmeare their whole bodies, as if they had that Leproſie or Scab, that is vulgarly termed, *Malum ſancti manis*. Neither muſt we thinke this art of counterfeiting, and cheating begging to bee new, and of late invention, for long agoe it flouriſhed in *Aſia*, even in the time of *Hippocrates*, as may appeare by his booke *De Aëre, Locis, & Aquis*. But by how much this diſeaſe hath taken more deepe roor, and

The craft of ſuch as faigne themſelves to have the falling ſickeneſſe.

Of ſuch as faign themſelves leprous.

grown more inveterate by proceſſe of time, by ſo much it muſt more diligently and carefully bee looked to and prevented, by cruelly puniſhing ſuch counterfeits: for that by this fained begging, as the nouriſher of ſloth and ſhoppe of all diſhoneſty, that which is taken from the good is beſtowed upon the ill, and one wicked & counterfeit beggar hurts all other wretched people.

Chap. XIX.

Of ſtrange or monſtrous accidents in Diſeaſes.

Monſters happen alſo in diſeaſes.

A bullet ſhot into the belly came forth at the fundament.

WHat monſtrouſneſſe ſoever was in the laſt mentioned parties, it was made up by the craft of beggars for filthy gaine. But if there be any monſtrouſneſſe in the following narrations, it is of nature, but working, as it were, miraculouſly, by ſome ſecret and occult meanes; for thus there are oft times monſters in diſeaſes. Before the towne of St. *John de Angeley*, a ſouldier called *Francis*, of the company of Captaine *Muret*, was wounded with a Harquebuze-ſhot on the belly, betweene his navell and ſides; the bullet was not taken out, becauſe the Chirurgians, who ſearched him diligently, could not finde it: wherefore hee was troubled with grievous and tormenting paines, untill the ninth day after hee received the wound, the bullet came forth at his fundament: wherefore within three weekes after he was perfectly whole. Hee was healed by *Simon Crinay*, the Chirurgian of the French companies.

A bullet ſticking to the throat and patient recovering.

James Pope, Lord of St. *Albanes* in *Dauphine*, was wounded at the skirmiſh at *Chaſenay*, having three harquebuze bullets entring into his body, one whereof pierced under his throate, where it buncheth out as with a knot, neare to the pipe of his lungs, even to the beginning of the *vertebræ* of the necke, in which place the leaden bullet ſtuck, and as yet doth remaine. Hereupon he was afflicted with many and fearfull ſymptomes, as a feaver, and a great ſwelling of his whole necke, ſo that for ten whole daies he could ſwallow nothing but broaths and liquid things. Yet he recovered, and remaineth well at this preſent, by the cure of *James Dalam* the Chirurgian.

Lib. 3. anatom. cap. 9.

A crooked iron ſhot into the backe came forth at the fundament.

Alexander Benedictus makes mention of a certaine countrie-man, who, ſhot into the backe with a dart, drawing out the ſhaft, the head was left behinde, being in length about the breadth of two fingers, but hooked and ſharpe on the ſides. When as the Chirurgian had carefully and diligently ſought for it, and could by no meanes finde it, he healed up the wound, but two months after this crooked head came forth at his fundament.

A ſwallowed needle voided by urine.

The ſame author telleth that at *Venice* a virgin ſwallowed a needle, which ſome two yeeres after ſhe voided by urine, covered over with a ſtony matter, gathered about viſcous humours.

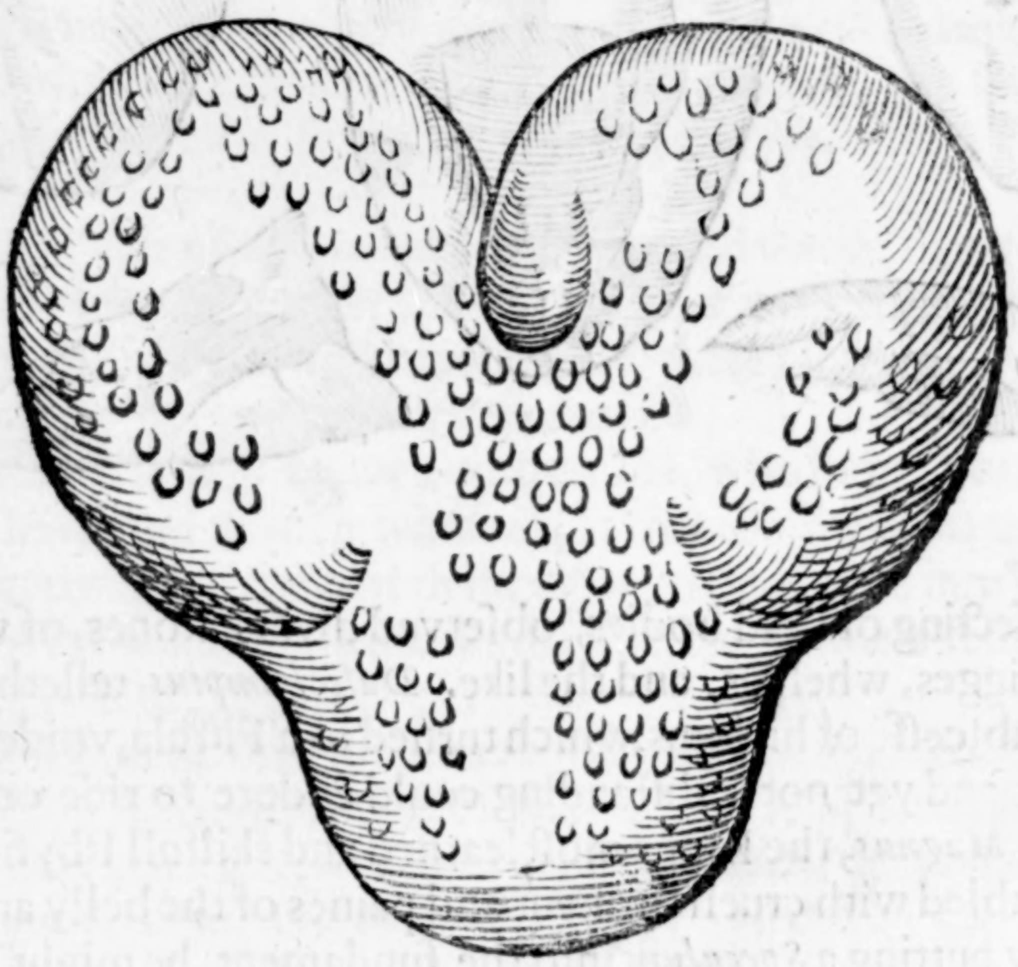
A needle running in at the buttocke came forth at the groine.

Catherine Perlan, the wife of *William Guerrier*, a Draper of *Paris*, dwelling in the Jewry, as ſhe rode on horſe-backe into the country, a needle out of her pin-cuſhion, which got under her by accident, ran ſo deepe into her right buttocke, that it could not by any art or force bee plucked forth. Foure moneths after ſhee ſent for mee to come to her, and ſhe told mee that as often as ſhe had to doe with her husband, ſhee ſuffered extreme pricking paine in her right groine; putting my hand thereto, as I felt it, my fingers met with ſomething ſharpe and hard: wherefore I uſed the matter ſo, that I drew forth the needle all ruſty: this may be counted a miracle, that ſteele, naturally heavie, ſhould riſe upwards, from the buttocke to the groine, and pierce the muſcles of the thigh, without cauſing an abſceſſe.

A needle in the midſt of a ſtone taken forth of the bladder.

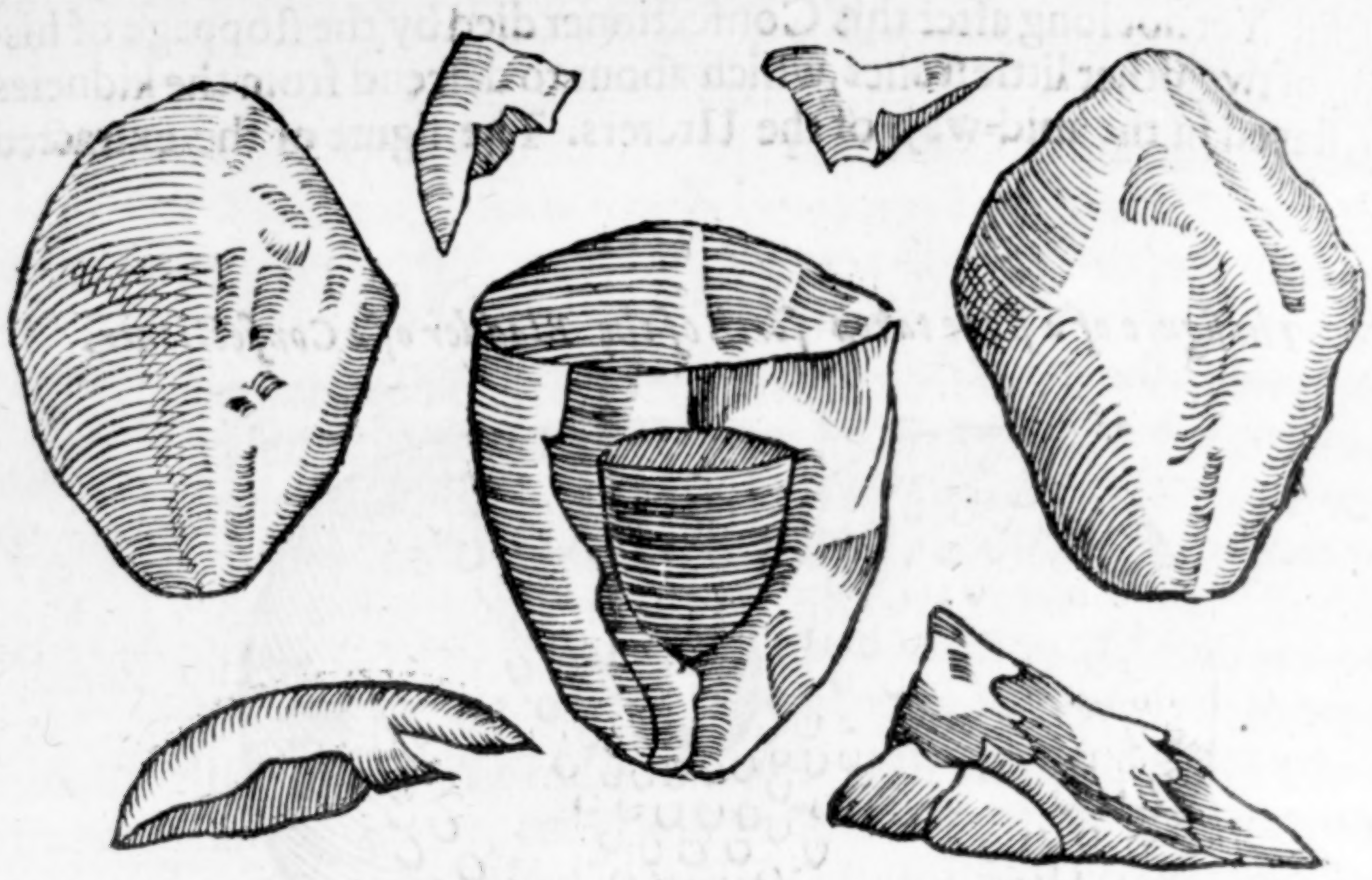
Anno Dom. 1566. the two ſonnes of *Laurence Collo* (men excellent in cutting for the ſtone) tooke forth a ſtone of the bigneſſe of a wall-nut, in the midſt whereof was a needle, juſt like thoſe that ſhooe-makers uſe: the patients name was *Peter Cocquin*, dwelling in the ſtreet *Galand*, at the place called *Maubert* at *Paris*, and I thinke hee is yet living. This ſtone was ſhewed to King *Charles* the ninth, for the monſtrouſneſſe of the thing, I being then preſent, which being given me by the Chirurgian, I preſerve amongſt my other rarities. *Anno Dom.* 1570. the Dutcheſſe of *Ferrara* at *Paris*, ſent for *John Collo*, to take a ſtone out of a Confectioner. This ſtone, though it waighed nine ounces, and was as thicke as ones fiſt, yet was it happily taken out, the patient recovering, *Francis Rouſſet*, and *Joſeph Javelle*, the Dutcheſſe Phyſitians, being preſent. Yet not long after this Confectioner died by the ſtoppage of his water, by reaſon of two other little ſtones, which about to deſcend from the kidneies to the bladder, ſtayed in the mid-way of the Ureters. The figure of the extracted ſtone was this.

The figure of a ſtone taken forth of the Bladder of a Confectioner.



Anno Dom. 1566. *Laurence Collo* the younger, tooke three ſtones out of the bladder of one dwelling at *Marly*, called commonly *Tire-vit*: becauſe being troubled with the ſtone from the tenth yeere of his age, hee continually ſcratched his yard, each of the ſtones were as bigge as an Hens egge; of colour white, they all together waighed twelve ounces. When they were preſented to King *Charles*, then lying at Saint *Maure des Fauſſez*, hee made one of them to bee broken with a hammer, and in the middeſt thereof there was found another, of a cheſnut colour, but otherwiſe much like a Peach ſtone. Theſe three ſtones, beſtowed on mee by the brethren, I have here repreſented to the life.

The effigies of the three forementioned ſtones, whereof one is broken.



I have in the diſſecting of dead bodies, obſerved divers ſtones, of various formes and figures, as of pigges, whelpes, and the like. *Dalechampius* telleth that hee ſaw a man, which by an abſceſſe of his loins, which turned to a Fiſtula, voided many ſtones out of his kidneies, and yet notwithſtanding could endure to ride on horſe-backe, or in a coach. *John Magnus*, the Kings moſt learned and skilfull Phyſitian, having in cure a woman, troubled with cruell torment and paines of the belly and fundament, ſent for me, that by putting a *Speculum* into the fundament, he might ſee if he could perceive any diſcernable cauſe of ſo great and pertinacious paine: and when as hee could ſee nothing which might further him in the finding out of the cauſe of her paine (following reaſon as a guide) by giving her often glyſters and purgations, hee brought it ſo to paſſe, that ſhee at length voided a ſtone at her fundament of the bigneſſe of a Tennis ball: which once avoided, all her paines ceaſed.

A ſtone by the force of purging medicines voided by the fundament.

5. *Epid.*

Hippocrates tells that the ſervant of *Dyſeris* in *Lariſſa*, when ſhee was young, in uſing venery was much pained, and yet ſometimes without paine, yet ſhee never conceived. But when as ſhe was ſixty yeeres old, ſhe was pained in the after-noone as if ſhe had beene in labour. When as ſhe one day before noone had eaten many leekes, afterward ſhee was taken with a moſt violent paine, farre exceeding all her former, and ſhe felt a certaine rough thing riſing up in the orifice of her wombe. But ſhe falling into a ſwoune, another woman putting in her hand, got out a ſharpe ſtone of the bigneſſe of a whirle, and then ſhe forthwith became well, and remained ſo.

A ſtone comming out of the necke of the wombe.

Lib. 1. cap. de palp. cond.

In a certaine woman, who, as *Hollerius* tells, for the ſpace of foure moneths was troubled with an incredible paine in making water, two ſtones were found in her heart, with many abſceſſes, her kidneyes and bladder being whole.

Anno Dom. 1558. I opened in *John Bourlier* a Taylour, dwelling in the ſtreet of St. *Honoré*, a watry abſceſſe in his knee, wherein I found a ſtone, white, hard, and ſmooth, of the thickeneſſe of an Almond; which being taken out, hee recovered. Certainely there is no part of the body wherein ſtones may not breed and grow.

No part of the body wherein ſtones may not bee found.

Anthony Benevenius a Florentine Phyſitian writes, that a certaine woman ſwallowed a braſſe needle without any paine, and continued a yeere after without feeling or complaining of it: but at the end thereof ſhe was moleſted with great paines in her belly; for helping of which ſhe asked the adviſe of all the Phyſitians ſhe could, making, in the interim, no mention of the ſwallowed needle. Wherefore ſhee had no benefit by all the medicines ſhe tooke; and ſhee continued in paine for the ſpace of two yeeres, untill at length the needle came forth at a little hole by her navell, and then ſhe recovered her health.

A needle ſwallowed, came forth at the navell ſome two yeeres after.

A Schollar named *Chambelant*, a native of *Bourges*, a ſtudient in *Paris*, in the Colledge of *Preſſe*, ſwallowed a ſtalke of graſſe, which came afterwards whole out betweene two of his ribbes, with the great danger of the ſchollars life. For it could not come there unleſſe by paſſing or breaking through the lungs, the encompaſſing membrane, and the intercoſtall muſcles, yet hee recovered, *Fernelius* and *Huguet* having him in cure.

A ſprig of graſs ſwallowed, came forth whole againe betweene the ribs.

Cabrolle Chirurgian to *Mounſieur*, the Marſhall of *Anville*, told mee that *Francis Guillenet* the Chirurgian of *Sommiers*, a ſmall village ſome eight miles from *Mompelier*, had in cure, and healed a certaine ſheepheard, who was forced by theeves to ſwallow a knife of the length of halfe a foot, with a horne handle of the thickeneſſe of ones thumbe: he kept it the ſpace of halfe a yeere, yet with great paine, and hee fell much away, but yet was not in a conſumption, untill at length an abſceſſe riſing in his groine, with great ſtore of very ſtinking quitture, the knife was there taken forth in the preſence of the Juſtices, and left with *Joubert* the Phyſitian of *Mompelier*.

A knife ſwallowed, came forth at an abſceſſe in the groine.

Mounſieur the Duke of *Rohan* had a Foole called *Guido*, who ſwallowed the point of a ſword of the length of three fingers, and hee voided it at his fundament on the twelfth day following, yet with much adoe: there are yet living many Gentlemen of *Britanie*, who were eye-witneſſes thereof.

The point of a ſword ſwallowed came forth at the fundament.

There have been ſundry women with childe, who have ſo caſt forth piece-meale children that have died in their wombes, as that the bones have broke themſelves a paſſage forth at the navill, but the fleſh, diſſolved as it were into quitture, flowed out by the necke of the wombe and the fundament, the mothers remaining alive, as *Dalechampius* obſerves out of *Albucraſis*.

Wonderfull excretions of infants out of the wombe.

Is it not very ſtrange that there have bin women, who troubled with a fit of the Mother, have lien three whole dayes without motion, without breathing, or pulſe that were any way apparent, and ſo have beene carried out for dead?

Women troubled with the Mother laid out for dead.

A certaine young man, as *Fernelius* tells, by ſomewhat too vehement exerciſe, was taken with ſuch a cough, that it left him not for a moment of time, untill hee therewith had caſt forth a whole impoſtume of the bigneſs of a pidgeons egg, wherein, being opened, there was found quitture exquiſitely white and equall. He ſpit blood two dayes after, had a great feaver, and was much diſtempered: yet notwithſtanding he recovered his health.

An impoſtume ſpit out, of the bigneſſe of a Pidgeons egge.

Anno Dom. 1578. *Stephana Chartier*, dwelling at St. *Maure des Fauſſez*, a widow of fourty yeeres old, being ſicke of a tertian Feaver, in the beginning of her fit vomited up a great quantity of choler, and together therewith three hairy wormes, in figure, colour, and magnitude like the wormes called Beare-wormes, yet ſomewhat blacker; they lived eight whole daies after without any food: the Chirurgian of this towne brought them to Dr. *Milot*, who ſhewed them to *Feure*, *Le Gros*, *Mareſcot* and *Courtin* Phyſitians, and to me alſo.

Worms caſt up in the fit of an Ague.

This following hiſtory, taken out of the Chronicles of *Monſtrele*, exceeds all admiration. A certaine Franck-Archer of *Meudon*, foure miles from *Paris*, was for robbery condemned to bee hanged: in the meane time it was told the King by the Phyſitians, that many in *Paris* at that time were troubled with the ſtone, and amongſt the reſt the Lord of *Boſcage*, and that it would be for the good of many, if they might view and diſcerne with their eyes the parts themſelves wherein ſo cruell a diſeaſe did breed, and that it might be done much better in a living than in a dead body, and that they might make tryall upon the body of the Franck-Archer, who had formerly beene troubled with theſe paines. The King granted their requeſt; wherefore opening his body they viewed the breathing parts, and ſatisfied themſelves as much as they deſired, and having diligently and exactly reſtored each part to its proper place, the body, by the Kings command, was ſewed up againe, and dreſſed and cured with great care. It came ſo to paſſe, that this Franck-Archer recovered in a few daies, and getting his pardon, got good ſtore of mony beſides.

This narration exceeds not onely all admiration, but alſo beliefe.

Alexander Benedictus tells that hee ſaw a woman called *Victoria*, who having loſt all her teeth, and being bald, yet had others came up in their places, when as ſhe was foureſcore yeeres old.

Pract. lib. 64. *cap.* 1.

Stephen Teſſier a Chirurgian of *Orleance*, told me that not long agoe he cured one *Charles Verguell*, a Serjeant of *Orleance*, of a wound received in his hamme, whereby the two tendons bending the ham, were quite cut inſunder. He took this order in the cure; hee cauſed the patient to bend his legge, then hee ſewed together the ends of the cut tendons, then placed the member in that ſite, and handled it with that art, that at length he healed the wound, the patient not halting at all. Truely this is a very memorable thing, and carefully and heedfully to be imitated by the young Chirurgian.

How many have I ſeen, who wounded and thruſt through the body with ſwords, arrowes, pikes, bullets, have had portion of the braine cut off by a wound of the head, an arme or legge taken away by a cannon bullet, yet have recovered? and how many on the contrary, have died of light and ſmall wounds, not worth the ſpeaking of?

5. Epidem. A certaine man was ſhot in neare to his groine with an arrow, whom we have ſeen, ſaith *Hippocrates*, and he recovered beyond all mens expectation; The arrow head was not taken forth, for it was very deep in, neither did the wound bleed very much, neither was it enſlamed, neither did he halt: but wee found the head, and tooke it forth ſixe yeeres after he was hurt. Now *Hippocrates* gives no other reaſon of its ſo long ſtay, but that he ſaith it might be ſuſpected it lay hid betweene the nerves, and that no veine nor artery was cut thereby.

CHAP. XX.

Of the wonderfull originall, or breeding of ſome creatures.

Boiſt. in hiſtor. prodig.

WEE have read in *Boiſtey*, that a certaine workeman of *Avignion*, when as hee lived in that city, opened a leaden coffin, wherein a dead body lay, that was ſo cloſely ſoudered, that the aire could not get in; and as he opened it, he was bitten by a ſerpent that lay therein, with ſo venemous and deadly a bite, that it had neere to have coſt him his life. Yet the originall of this creature is not ſo prodigious as hee ſuppoſeth, for it is an uſuall thing for a Serpent to breed of any putrefyed carcaſſe, but chiefly of a mans.

It is a common thing for a ſerpent to breed of the dead corps of a man.

A live ſerpent in a ſolide Marble.

Baptiſta Leo writes, that in the time of Pope *Martin* the fift, there was a live ſerpent found encloſed in a vaſte, but ſolid Marble, no chinke appearing in ſuch denſe ſolidity, whereby this living creature might breath.

Whileſt in my vine-yard, that is at *Meudon*, I cauſed certain huge ſtones to be broken to pieces, a Toad was found in the midſt of one of them. When as I much admired thereat, becauſe there was no ſpace wherein this creature could be generated, encreaſe or live, the Stone-cutter wiſhed mee not to marvaile thereat, for it was a common thing, and that he ſaw it almoſt every day. Certainly it may come to paſſe that from the more moiſt portion of ſtones, contained in places moiſt and under ground, and the celeſtiall heat mixing and diffuſing it ſelfe over the whole maſſe of the world, the matter may be animated for the generation of theſe creatures.

The cauſe of ſuch wonderful generations.

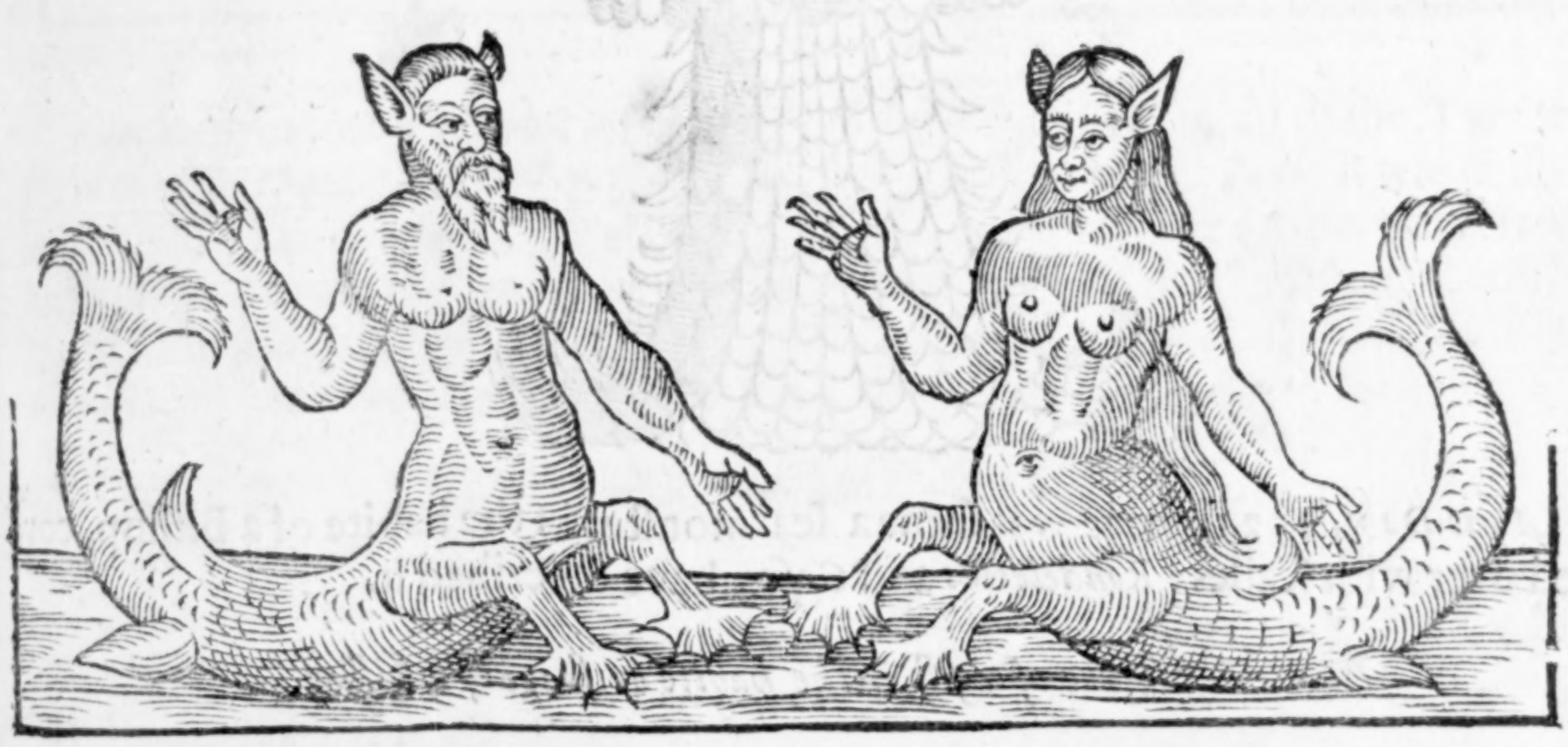
CHAP. XXI.

Of the wondrous nature of ſome marine things, and other living creatures.

THE laſt mentioned creatures were wonderfull in their originall, or rather in their growth: but theſe which follow, though they be not wonderfull of themſelves, as thoſe that conſiſt of their owne proper nature, and that working well and after an ordinary manner; yet they are wondrous to us, or rather monſtrous, for that they are not very familiar to us. For the rarity and vaſtneſſe of bodies, is in ſome ſort monſtrous. Of this ſort there are many, eſpecially in the Sea, whoſe ſecret corners and receptacles are not pervious to men: as Tritons, which from the middle upwards are reported to have the ſhape of men. And the *Sirenes, Nereïdes* or Mere-maides, who (according to *Pliny*) have the faces of women, and ſcaly bodies, yea where as they have the ſhape of man: neither yet can the forementioned confuſion and conjunction of ſeeds take any place here, for, as we lately ſaid, they conſiſt of their owne proper nature. *Lib. 9. cap. 5.*

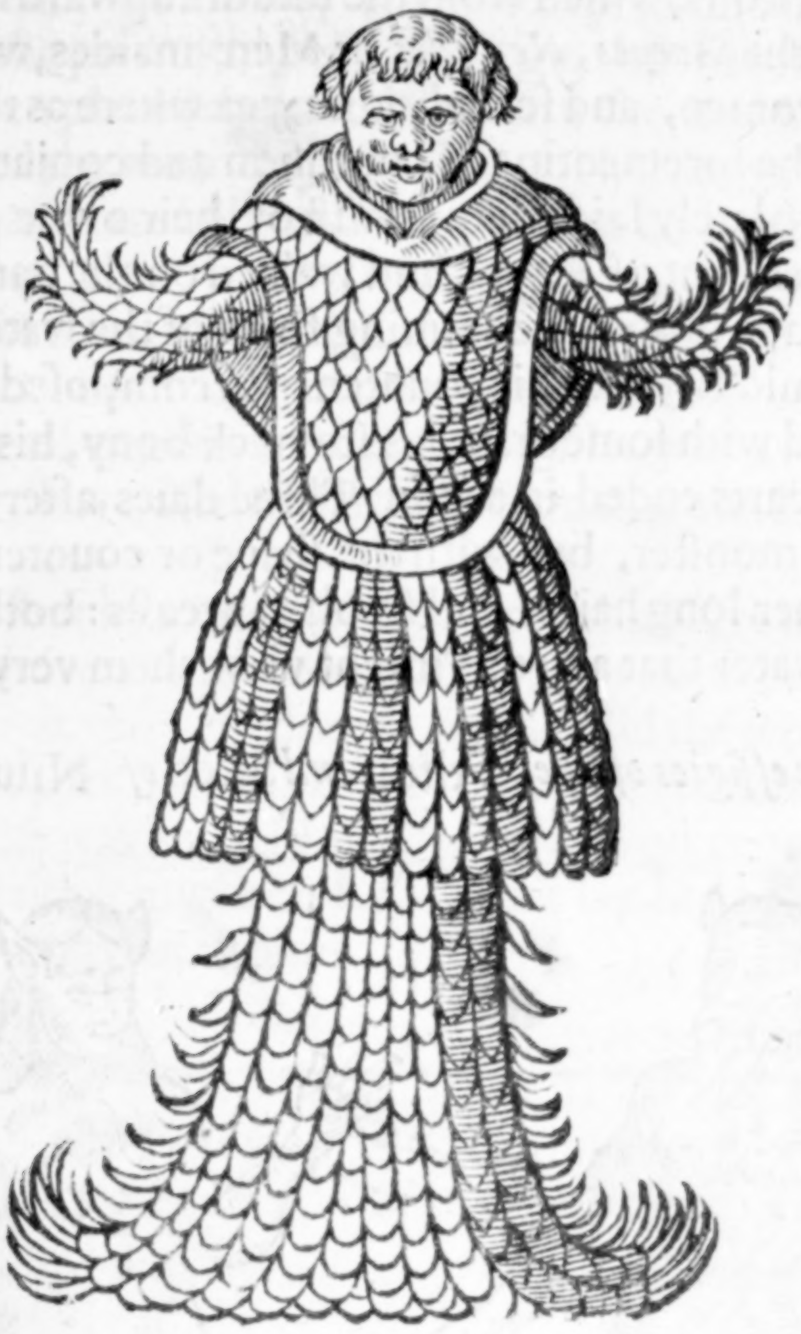
When *Mena* was Preſident of *Ægypt*, and walked on the bankes of *Nilus*, he ſaw a Sea-monſter in the ſhape of a man, comming forth of the waters: his ſhape was juſt like a man even to the middle, with his countenance compoſed to gravity, his haires yellow, yet intermixed with ſome gray, his ſtomack bony, his armes orderly made and jointed, his other parts ended in a fiſh. Three daies after in the morning there was ſeene another Sea-monſter, but with the ſhape or countenance of a woman, as appeared by her face, her long haire, and ſwollen breaſts: both theſe monſters continued ſo long above water that any one might view them very well.

The effigies of the Triton *and* Siren *of* Nilus.



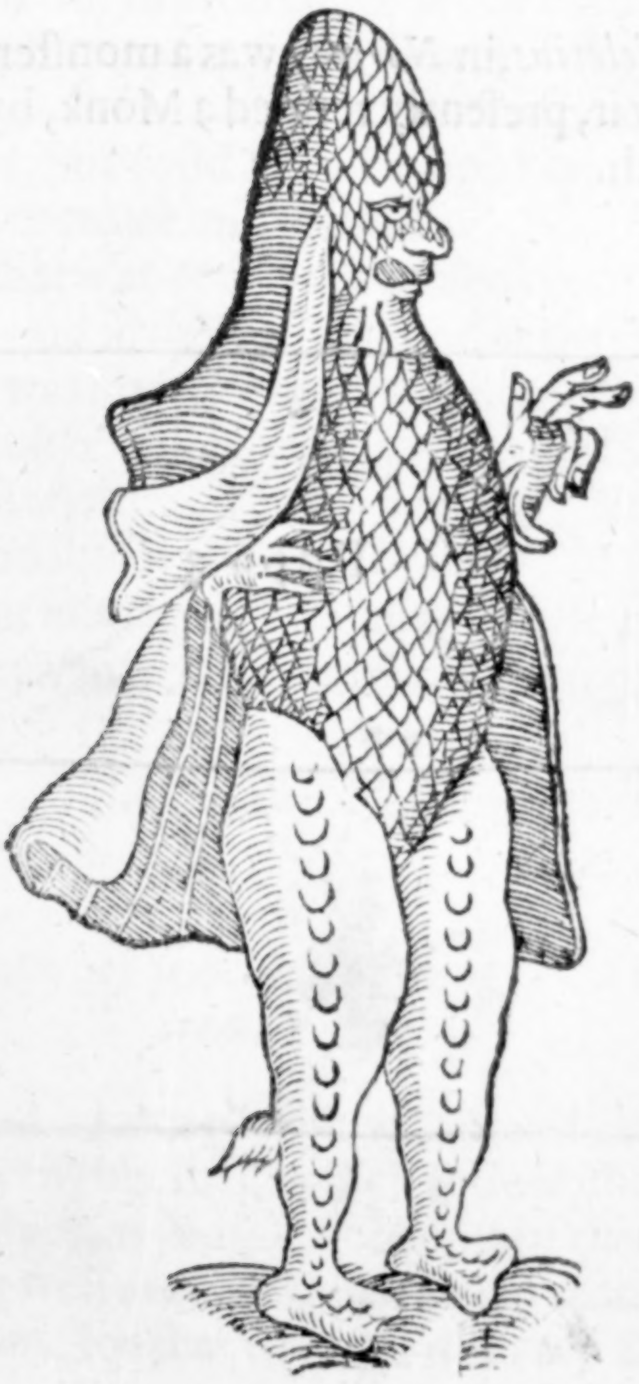
In our times, ſaith *Rondeletius*, in *Norway* was a monſter taken in a tempeſtuous ſea, the which as many as ſaw it, preſently termed a Monk, by reaſon of the ſhape which you may ſee here ſet forth.

The figure of a fiſh reſembling a Monke.



Anno Dom. 1531. there was ſeene a ſea-monſter in the habite of a Biſhop, covered over with ſcailes: *Rondeletius* and *Geſner* have deſcribed it.

The figure of a fiſh in the habite or ſhape of a Biſhop.



Geſner

Geſner pro
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Anno Dom.
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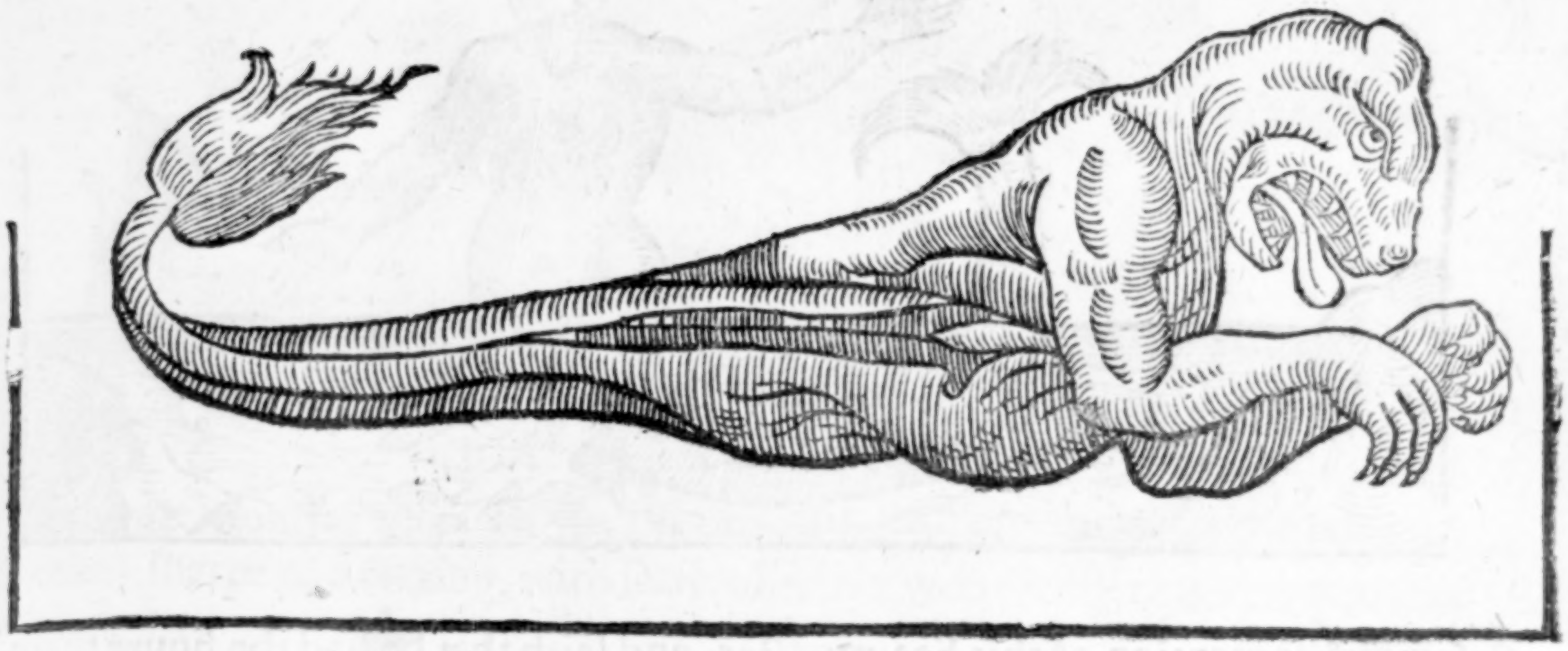
Geſner

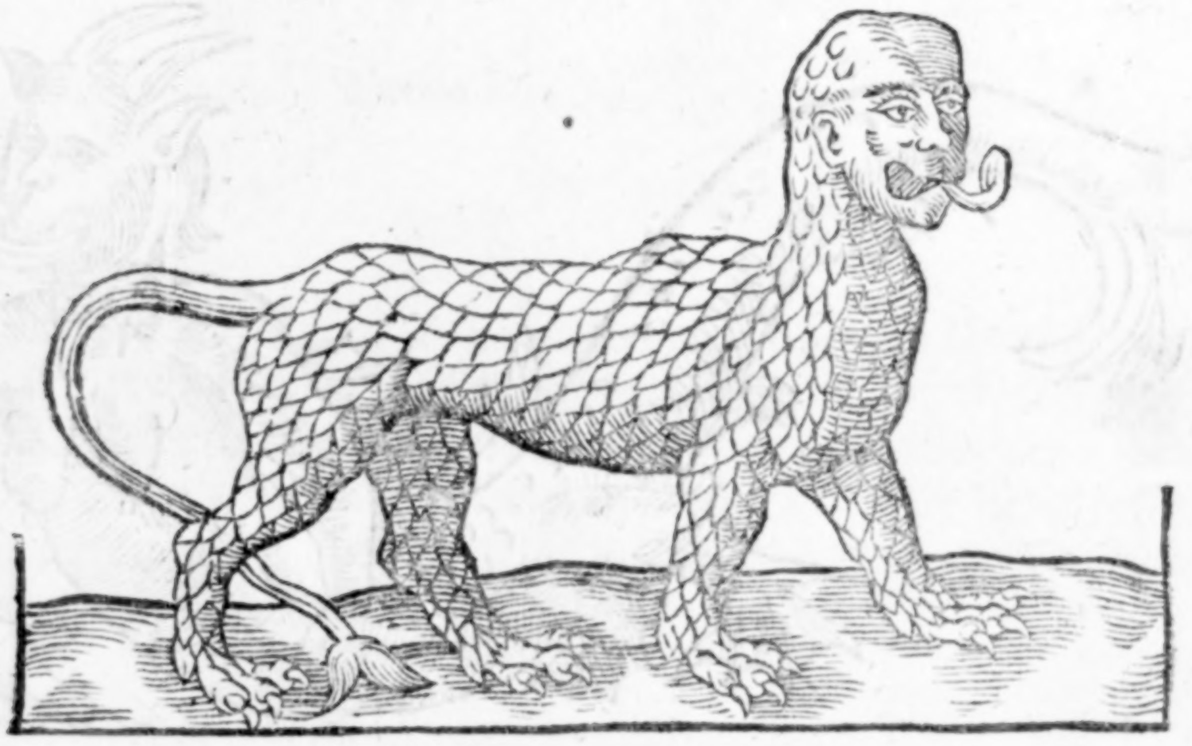
Geſner profeſſeth that hee received from *Jerome Cardane* this monſter, having the head of a Beare, the feet and hands of an Ape.

The effigies of a Sea-monſter headed like a Beare.



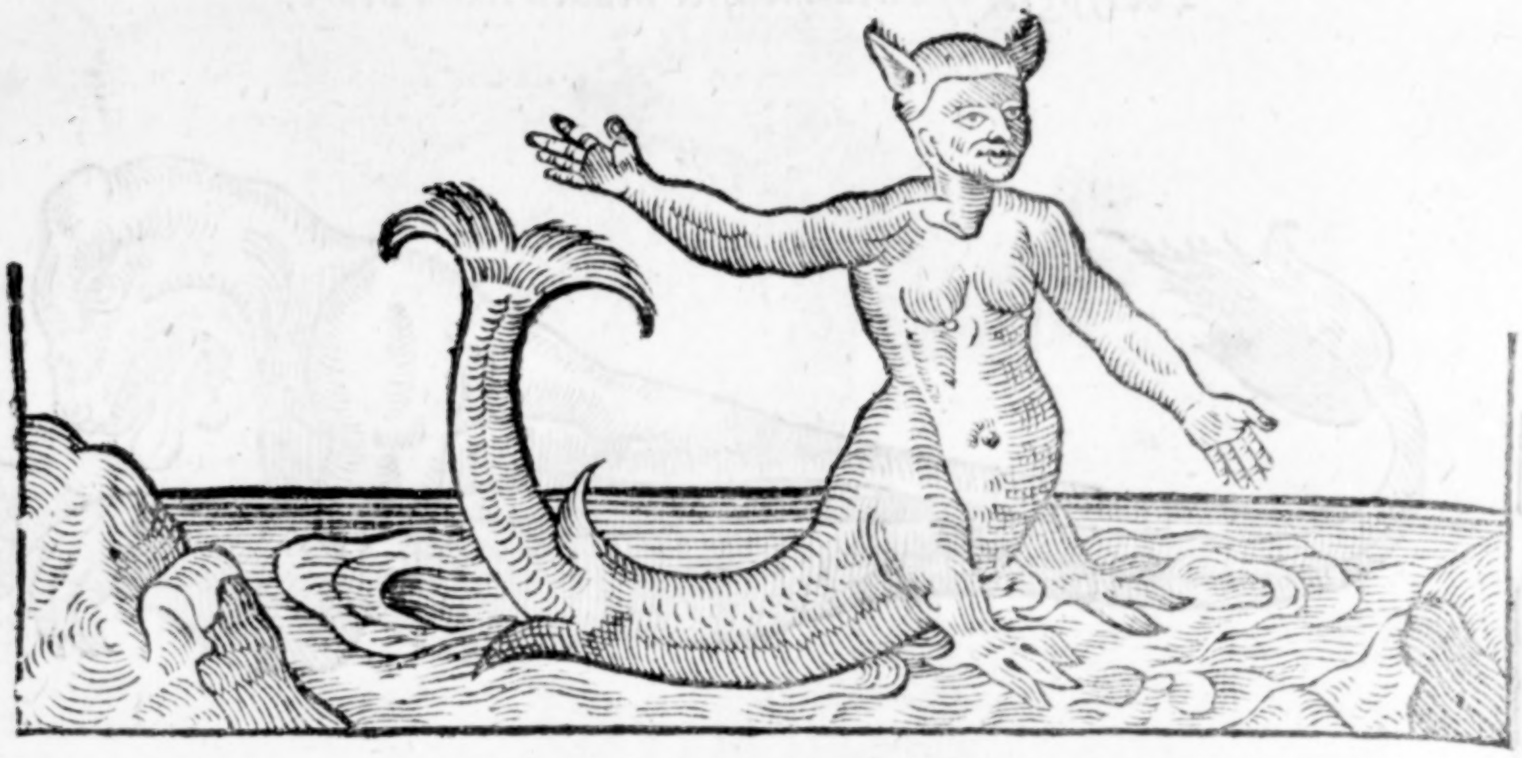
Not long before the death of Pope *Paul* the third, in the midſt of the Tyrrhene ſea, a monſter was taken, and preſented to the ſucceſſour of this *Paul*: it was in ſhape and bigneſſe like to a Lion, but all ſcaily, and the voice was like a mans voice. It was brought to *Rome* to the great admiration of all men, but it lived not long there, being deſtitute of its owne naturall place and nouriſhment, as it is reported by *Philip Forreſt*. *Lib. 5. chron.*

The effigies of a Lion-like ſcaily Sea-monſter.



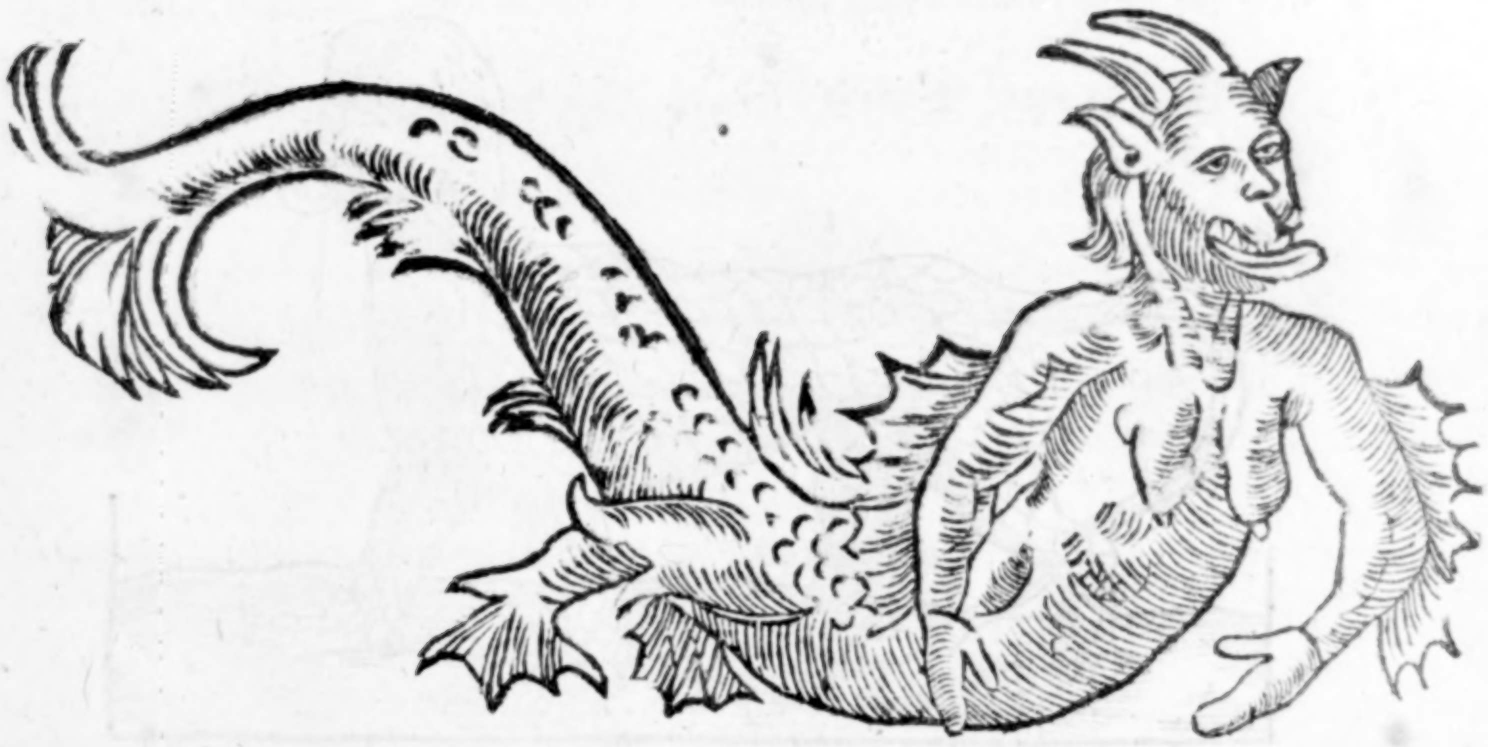
*Anno Dom.*1523. the third day of *November*, there was ſeen at *Rome* this ſea-monſter, of the bigneſſe of a child of five yeeres old, like to a man even to the navell, except the eares; in the other parts it reſembled a fiſh.

The effigies of a Sea-monſter with a mans face.



Geſner makes mention of this Sea-monſter, and ſaith that he had the figure thereof from a Painter, who tooke it from the very fiſh, which hee ſaw at *Antwerpe*. The head lookes very ghaſtly, having two hornes, pricke eares, and armes not much unlike a man, but in the other parts it was like a fiſh. It was taken in the Illyrian Sea, as it came a ſhore out of the water to catch a little child: for being hurt by ſtones caſt by fiſhermen that ſaw it, it returned a while after to the ſhore from whence it fled, and there died.

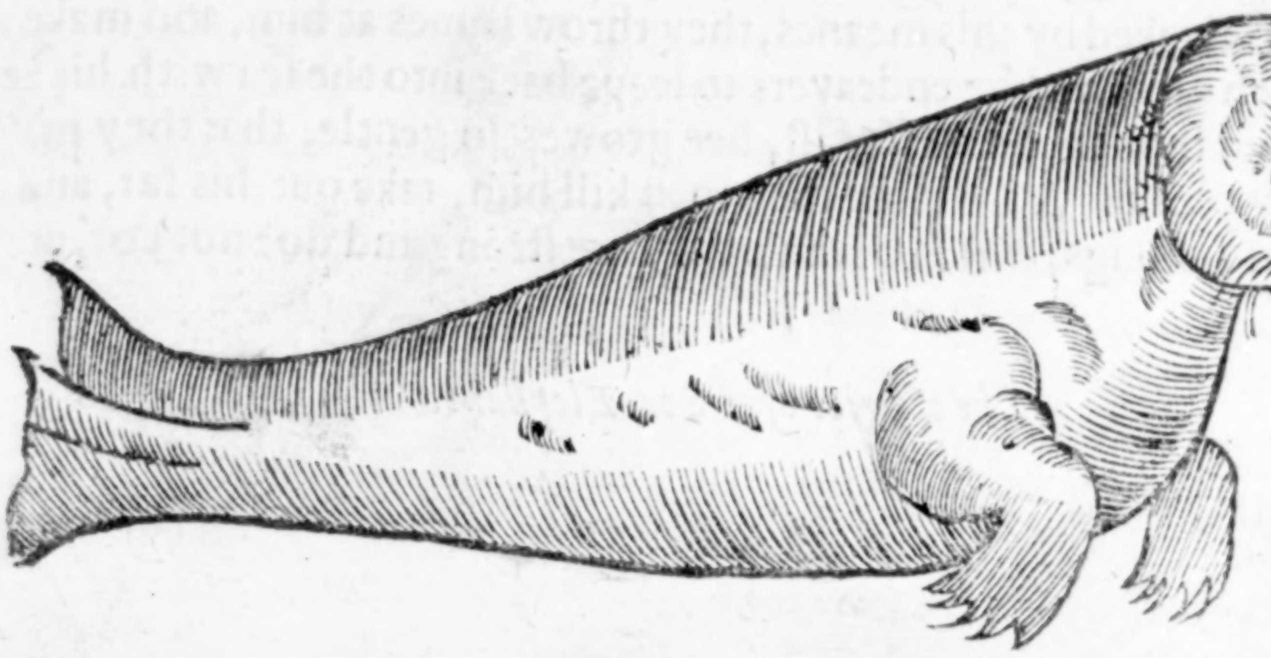
The effigies of a Sea Devill.



Geſner tells that a Sea-monſter with the head, mane, and breaſt of a horſe, and the reſt of his body like a fiſh, was ſeene and taken in the ocean Sea, brought to *Rome*, and preſented to the Pope.

Olaus Magnus tells that a Sea-monſter taken at *Bergen*, with the head and ſhape of a Calfe, was given him by a certaine Engliſh Gentleman. The like of which was preſented lately to King *Charles* the ninth, and was long kept living in the waters at *Fountaine-Bleau*, and it went oft times aſhore. This is much different from the common Sea-calfe or Seale.

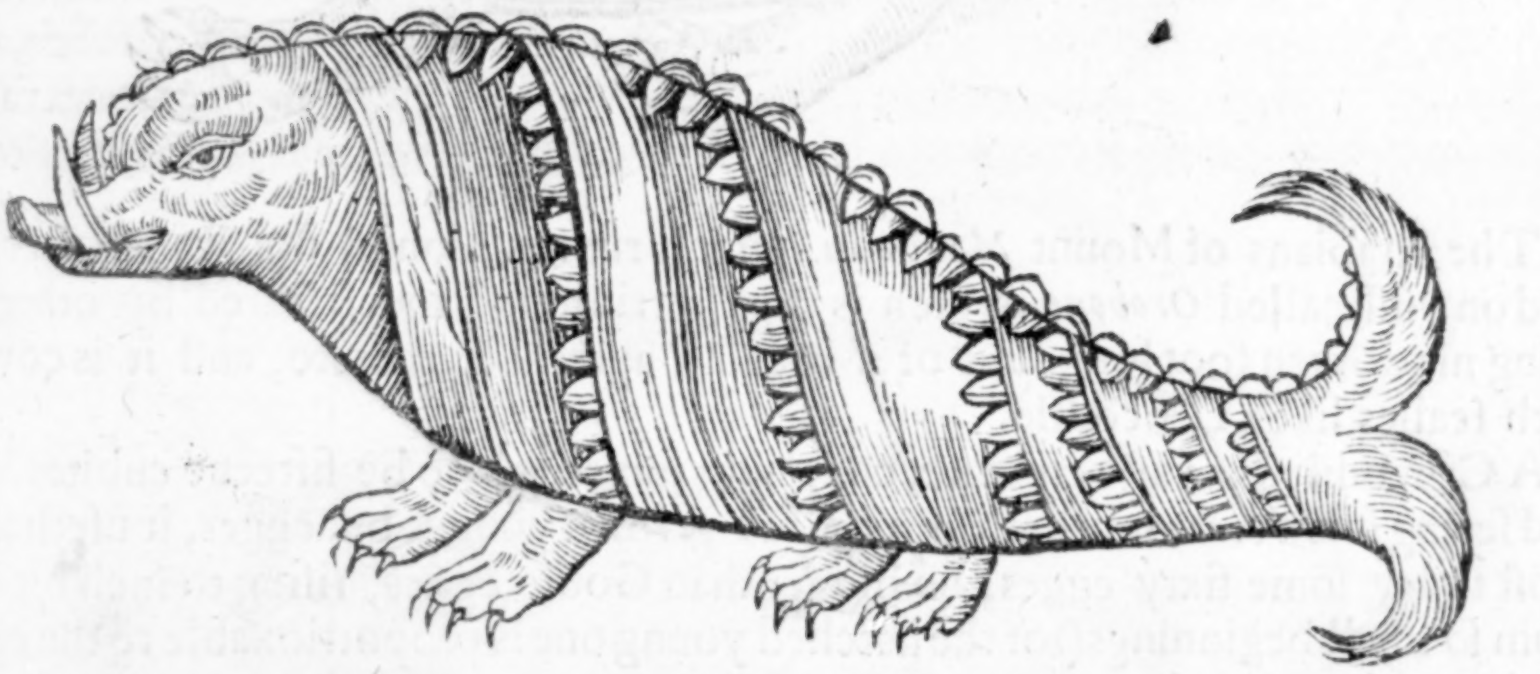
The effigies of a monſtrous Sea-calfe.*



* This here figured is the ſea-Morſe, taken commonly by our men in their Greene-land voyages: and I judge the ſea-Bore and Elephant to be the ſame, but that the Painter hath ſhewed his skill too much in the one: and the other is an old Morſe, as this here figured is a young one.

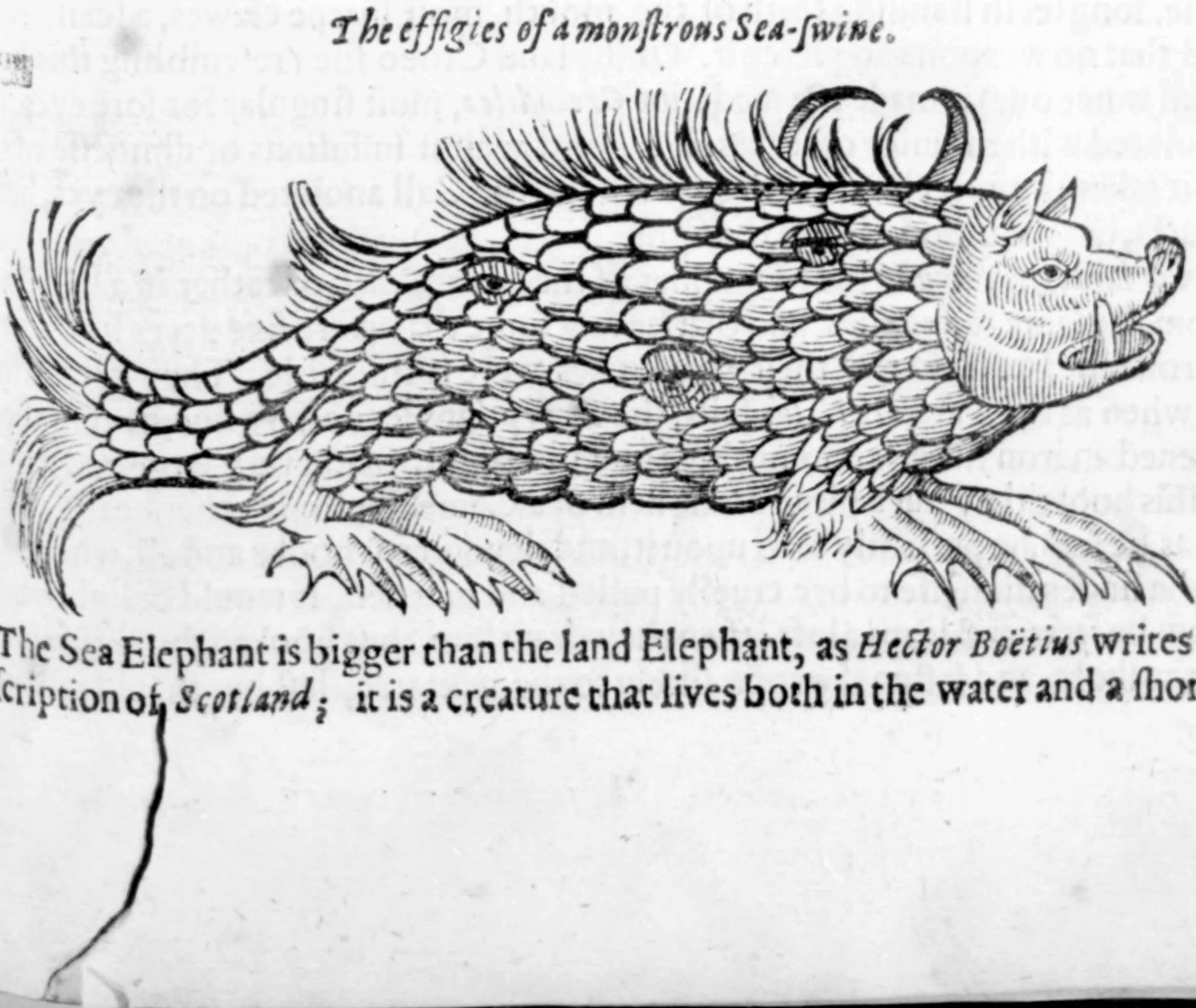
This great monſter was ſeene in the Ocean ſea, with the head of a Bore, but longer tuskes, ſharpe and cutting, with ſcailes ſet in a wonderfull order, as you may ſee by this figure.

The effigies of a Sea-bore.



Olaus Magnus writes that this monſter was taken at *Thyle* an Iland of the North, *Anno Dom.* 1538. it was of a bigneſſe almoſt incredible, as that which was ſeventy two foot long, and fourteene high, and ſeven foot betweene the eyes: now the liver was ſo large that therewith they filled five hogſheads, the head reſembled a ſwine, having as it were a halfe moone on the backe, and three eyes in the midſt of his ſides, his whole body was ſcaily.

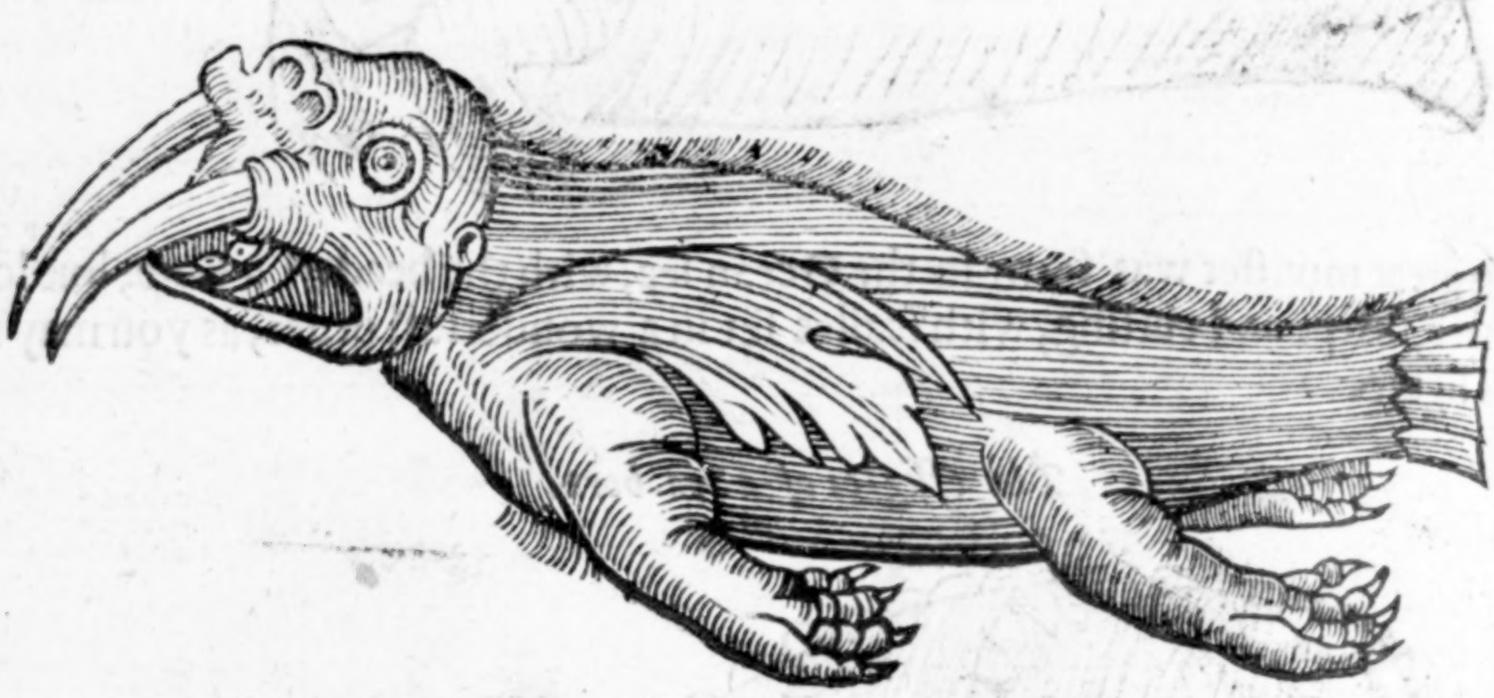
The effigies of a monſtrous Sea-ſwine.



The Sea Elephant is bigger than the land Elephant, as *Hector Boëtius* writes in his deſcription of *Scotland*; it is a creature that lives both in the water and a ſhore, having

ving two teeth like to elephants, with which as oft as hee deſires to ſleepe, he hangs himſelfe upon a rocke, and then he ſleeps ſo ſoundly, that Mariners ſeeing him at ſea, have time to come aſhore, and to bind him, by caſting ſtrong ropes about him. But when as he is not awaked by this meanes, they throw ſtones at him, and make a great noiſe, with which awakned, he endeavers to leape back into the ſea with his accuſtomed violence, but finding himſelfe faſt, hee growes ſo gentle, that they may deale with him as they pleaſe. Wherefore they then kill him, take out his fat, and divide or cut his skin into thongs, which becauſe they are ſtrong and doe not rot, are much eſteemed of.

The effigies of a Sea-Elephant.



The Arabians of Mount *Mazovan*, which runnes alongſt the Red Sea, chiefly feed on a fiſh called *Orobone*, which is very terrible and much feared by other fiſh, being nine or ten foot long, and of a breadth agreeable thereto, and it is covered with ſcailes like a Crocodile.

A Crocodile is a vaſte creature, comming ſometimes to be fifteene cubites long, and ſeeing it is a creature that doth not bring forth young, but egges, it uſeth at the moſt to lay ſome ſixty egges, no bigger than Gooſe egges, riſing to ſuch bigneſſe from ſo ſmall beginnings (for the hatched young one is proportionable to the egge): ſhe is very long lived.

The Crocodile only moves the upper jaw.

Expende diligenter Plinii locum lib. 28. cap. 8.

It hath ſo ſmall and uſeleſſe a tongue, that it may ſeeme to have none at all. Wherefore ſeeing it lives both on land and water; as it lives on land it is to bee taken for a tongue, but as it lives part of the life in the water it hath no uſe of a tongue, and therfore is not to bee reputed one. For fiſhes either wholly want tongues, or elſe have them ſo impedite and bound, that they ſerve for little uſe. The Crocodile onely of all other things moves the upper jaw, the lower remaining unmoveable: for her feet, they are neither good to take nor hold any thing; ſhe hath eyes not unlike thoſe of ſwine, long teeth ſtanding forth of the mouth, moſt ſharpe clawes, a ſcaily skin, ſo hard that no weapon can pierce it. Of the land Crocodile (reſembling this both land and water one) is made the medicine *Crocodilea*, moſt ſingular for ſore eyes, being anointed with the juice of leekes, it is good againſt ſuffuſions or dimneſſe of the ſight; it takes away freckles, puſtles, and ſpots; the Gall anointed on the eyes, helps Cataracts, but the blood cleares the ſight.

Coſmograph. tom. 1. lib. 2. cap. 8.

How they take Crocodiles.

Thevet ſaith they live in the fountaines of the river *Nilus*, or rather in a lake flowing from the ſame fountaines, and that he ſaw ſome that were ſixe paces long, and a yard croſſe the backe, ſo that their very lookes were formidable. They catch them thus; when as the water of *Nilus* falls, the Ægyptians let down a line, having thereto faſtened an iron hooke of ſome three pound waight, made very large and ſtrong, upon this hooke they put a piece of the fleſh of a Camell or ſome other beaſt; which when as he ſees, he preſently falls upon it, and devoures it hooke and all, wherewith when he findes himſelfe to bee cruelly pulled and pinched, it would delight you to ſee how he frets and leaps aloft; then they draw him thus hooked, by little and little to the ſhore, and faſten the rope ſurely to the next tree, leſt hee ſhould fall upon them that are about him; then with prongs, and ſuch things they ſo belabour his belly, where as his ſkin is ſoft and thinne, that at length they kill him, and uncaſing him, they make ready his fleſh, and eat it for delicious food. *John Lereus*, in his hiſtory of *Braſil*, writes that the Salvages of that country willingly feed upon Crocodiles, and that hee ſaw ſome who brought into their houſes young ones, wherewith the children gathering about it, would play without receiving any harme thereby.

Cap. 10.

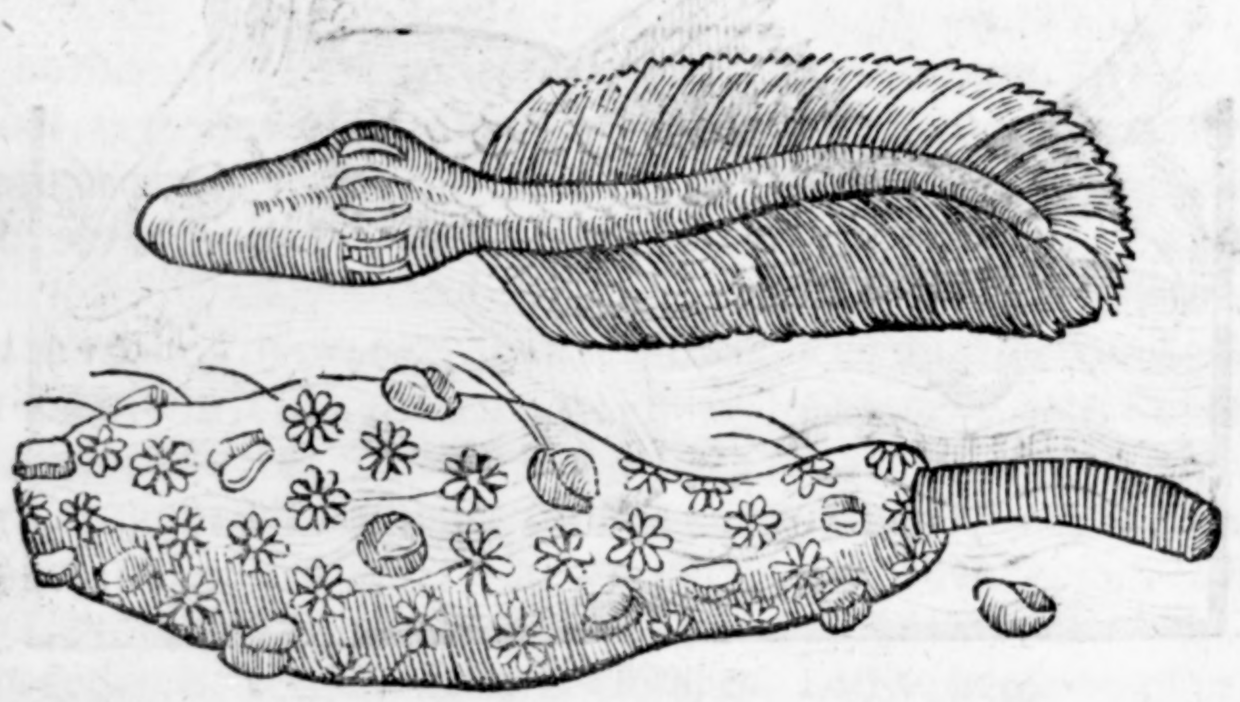
True (ſaith *Pliny*) is that common opinion, Whatſoever is brought forth in any part of Nature, that alſo is in the ſea, and many other things over and above, that are in no other place. You may perceive that there are not onely the reſemblances of living creatures, but alſo of other things; if you looke upon the ſword, ſaw, cowcumber, like in ſmell and colour to that of the earth, that you may leſſe wonder at the Sea feather and grape, whoſe figures I have here given you out of *Rondeletius*.

Lib. 9. cap. 2.

The ſea feather is like thoſe feathers of birds, which are worne in hats for ornament, after they are trimmed and dreſt for that purpoſe. The fiſhermen call them ſea-prickes, for that one end of them reſembleth the end of a mans yard, when the prepuce is drawne off it. As long as it is alive it ſwells, and becomes ſometimes bigger and ſometimes leſſer; but dead, it becomes very flaccide and lanke: it ſhines bright on the night like a ſtarre.

You may by this gather, that this which wee here expreſſe is the Grape whereof *Pliny* makes mention, becauſe in the ſurface and upper part thereof it much reſembles a faire bunch of Grapes; it is ſomewhat longiſh, like a mis-ſhapen clubbe, and hangs upon a long ſtalke. The inner parts are nothing but confuſion, ſometimes diſtinguiſhed with little glandules, like that wee have here figured alone by it ſelfe.

The figures of the Sea Feather and Grape.



In the Sea neere the Iſland *Hiſpaniola* in the Weſt Indies, there may be ſeene many monſtrous fiſhes, amongſt which *Thevet* in his Coſmography thought this moſt rare and obſervable, which in the vulgar language of the natives is termed *Aloes*. For it is juſt like a gooſe, with a long and ſtraight necke, with the head ending ſharpe, or in a Cone, not much unlike a ſugar-peare, it is no bigger than a gooſe, it wanteth ſcailes, it hath foure finnes under the belly for ſwimming, when it is above water you would ſay that it were a gooſe.

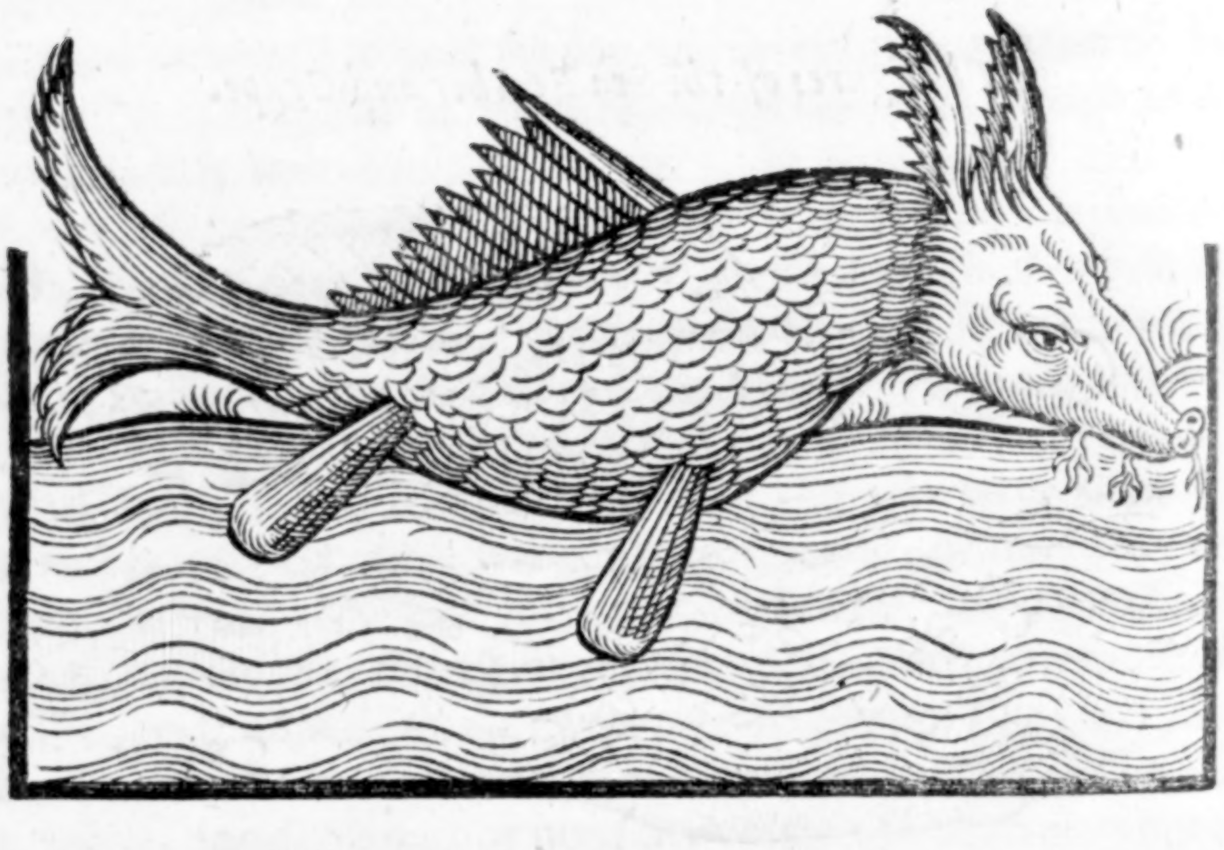
The Sarmatian, or Eaſterne Germane Ocean containes fiſhes unknowne to hot countries, and very monſtrous. Such is that which reſembling a ſnaile, equalls a barrell in magnitude of body, and a ſtag in the largeneſſe and branches of her hornes: the ends of her hornes are rounded as it were into little balls, ſhining like unto pearles, the necke is thicke, the eyes ſhining like to lighted candles, with a roundiſh noſe ſet with haires like to a cats, the mouth wide, whereunder hangs a piece of fleſh very ugly to behold. It goes on foure legges, with ſo many broad and crooked feet, the which with a long taile, and variegated like a Tiger, ſerves her for finnes to ſwim withall. This creature is ſo timerous, that though it be an *Amphibium*, that is, which lives both in the water and aſhore, yet uſually it keeps it ſelfe in the ſea, neither doth it come aſhore to feed unleſſe in a very cleare ſeaſon. The fleſh thereof is very good and gratefull meat, and the blood medicinable for ſuch as have their livers ill affected, or their lungs ulcerated, as the blood of great Tortoiſes is good for the Leproſie. *Thevet* in his Coſmography affirmeth that hee ſaw this in *Denmarke*.

The blood of great Tortoiſes good for the leproſie.

Tom. 2. lib. 20.

In a deepe lake of freſh water, upon which ſtands the great city or towne of *Themiſtitan*, in the Kingdome of *Mexico*, which is built upon piles, like as *Venice* is, there is found a fiſh of the bigneſſe of a Calfe, called by the ſoutherne Salvages, *Andura*, but by thoſe of the place, and the Spaniards the conquerers of that place, *Hoga*. It is headed and eared almoſt like a ſwine; from the chaps hang five long bearded *appendices*, of the length of ſome halfe a foot, like the beard of a Barbell. It hath fleſh very gratefull and good to eat. It bringeth forth live young like as the Whale. As it ſwimmes in the waters, it ſeemes greene, yellow, red, and of many colours, like a Chameleon: it is moſt frequently converſant about the ſhore ſides of the lake, and there it feeds upon the leaves of the tree called *Hoga*, whence alſo the fiſh hath its name. It is a fearefully toothed and fierce fiſh, killing and devouring ſuch as it meeteth withall, though they bee bigger than her ſelfe: which is the reaſon why the Fiſhermen chiefly deſire to kill her, as *Thevet* affirmeth in his Coſmography.

The monſtrous fiſh Hoga.

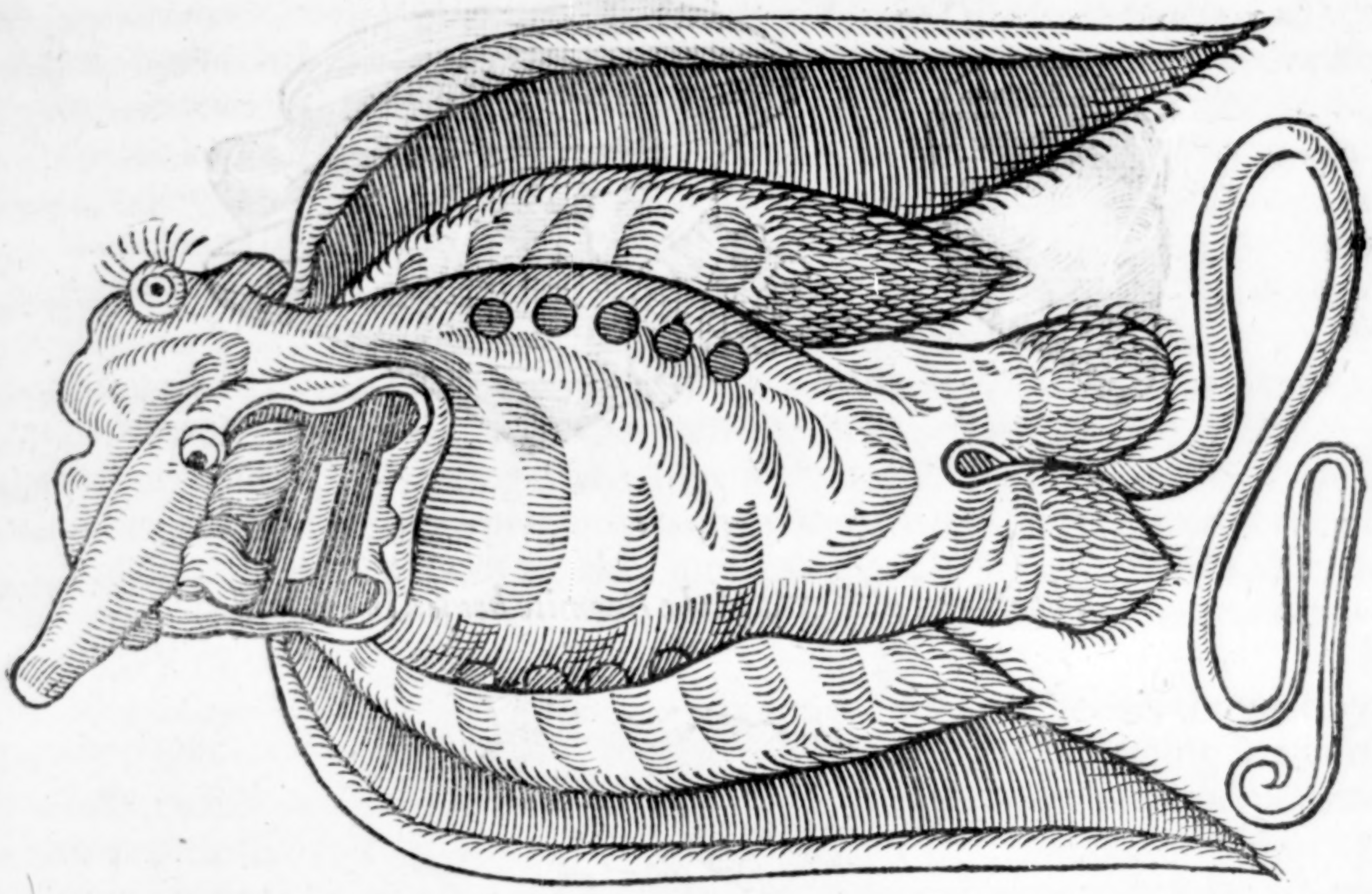


Andrew Thevet in his Coſmography writes that as he ſailed to *America*, hee ſaw infinite ſtore of flying fiſhes, called by the ſalvages *Bulampech*, who riſing out of the water, flye ſome fifty paces, eſcaping by that meanes from other greater fiſh that thinke to devoure them.

This kinde of flying fiſh exceeds not the bigneſſe of a Mackrell, is round headed, with a blewiſh backe, two wings which equall the length of almoſt all their body. They oft times flye in ſuch a multitude, that they fall foule upon the ſailes of ſhips, whileſt they hinder one anothers ſight, and by this meanes they fall upon the decks, and become a prey to the Sailers: which ſame thing we have read confirmed by *John Lereus* in his hiſtory of *Braſil*.

In the Venetian gulfe, betweene *Venice* and *Ravenna*, two miles above *Quioza*, *anno Dom.* 1550. there was taken a flying fiſh, very horrible and monſtrous, being foure foot long, it had a very great head, with two eyes ſtanding in a line, and not one againſt another, with two eares, and a double mouth, a ſnout very fleſhy and greene, two wings, five holes in her throat, like thoſe of a Lamprey, a taile an ell long, at the ſetting on whereof there were two little wings. This monſter was brought alive to *Quioza*, and preſented to the chiefe of the city, as a thing whereof the like had not beene formerly ſeene.

The figure of a monſtrous flying Fiſh.



There are ſo many and different ſorts of ſhells to be found in the Sea, that it may be truely ſaid, that Nature, the hand-maid of the Almighty, deſports it ſelfe in the framing of them. In ſo great diverſity I have chiefly made choice of three to treat of here, as thoſe that are worthy of the greateſt admiration. In theſe lye hid certain little fiſhes, as ſnailes in their ſhells, which *Ariſtotle* calls *Cancelli*, and hee affirmeth them to be the common companions of the * cruſted and ſhell fiſhes, as thoſe which in their *ſpecies* or kinde are like to Lobſters, and uſe to be bred without ſhells; but as they creepe into ſhells, and there inhabite, they are like to ſhell fiſhes. It is one of theſe that is termed the Hermite. He hath two ſomewhat long and ſlender hornes, under which are his eyes, alwaies ſtanding out of his head, as thoſe which he cannot plucke and draw in, as Crabbes can. His fore-feet have clawes upon them, wherewith he defends himſelfe, and carries meat to his mouth, having two other on each ſide, and a third being leſſer, the which he uſeth in going. The female laies egges, which hang forth at her backe part as if they were put upon a thread, being joyned together by certaine little membranes. Laſtly, in the opinion of *Ælian*, the *Cancellus* or ſmall Cray-fiſh is borne naked and without a ſhell, but within a while after, ſhe of many which ſhee findes empty, makes choice of a fit one, and when as growne bigger, ſhe cannot bee contained or dwell any longer therein, or elſe being ſtimulated with a naturall deſire of copulation, ſhe removes into a more capacious and convenient one. Theſe little Cray-fiſhes oft times fight together for their habitation, and the ſtronger carries away the empty ſhell, or elſe makes the weaker to quit poſſeſſion. Now the ſhell is either of a *Nerita*, or *Turbo*, and oft times of a ſmall Purple; and entring into poſſeſſion, ſhe carries it about, there feeds and growes, and then ſeekes a more capacious one, as *Ariſtotle* ſaith in the formerly cited place.

4. de hiſt. anim. cap. 4.

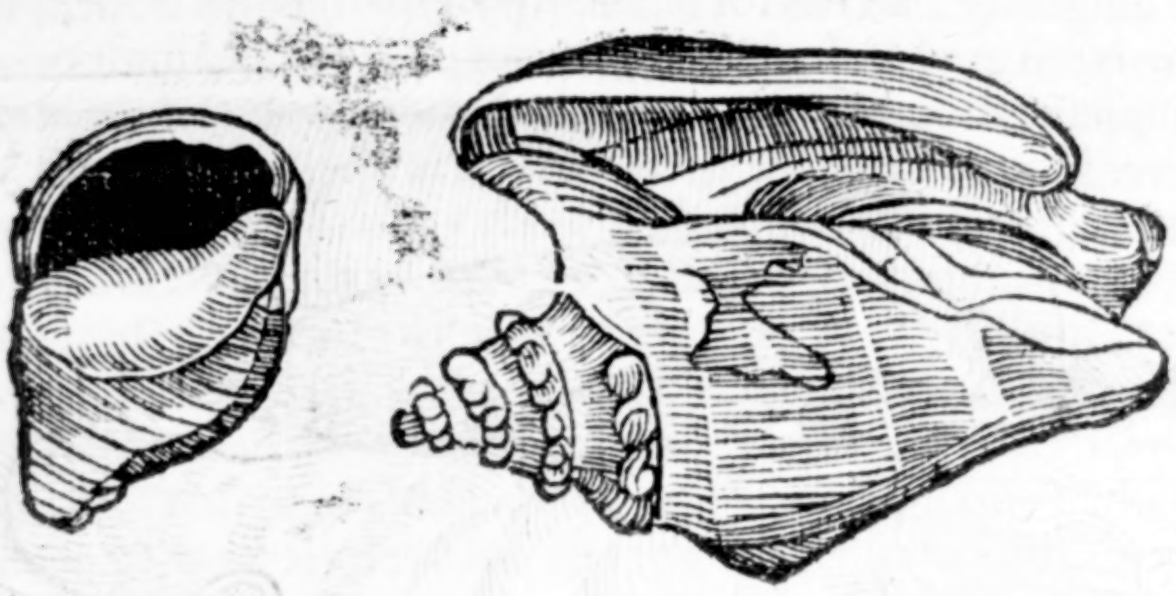
* By cruſted is meant Crabs, Lobſters, Shrimps, and ſuch like.

The deſcription of the Hermite cray-fiſh.

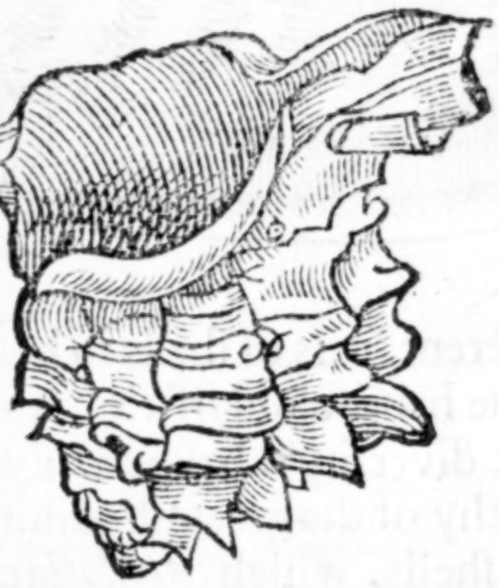
Lib. 7. cap. 31.

They change their habitation for two cauſes.

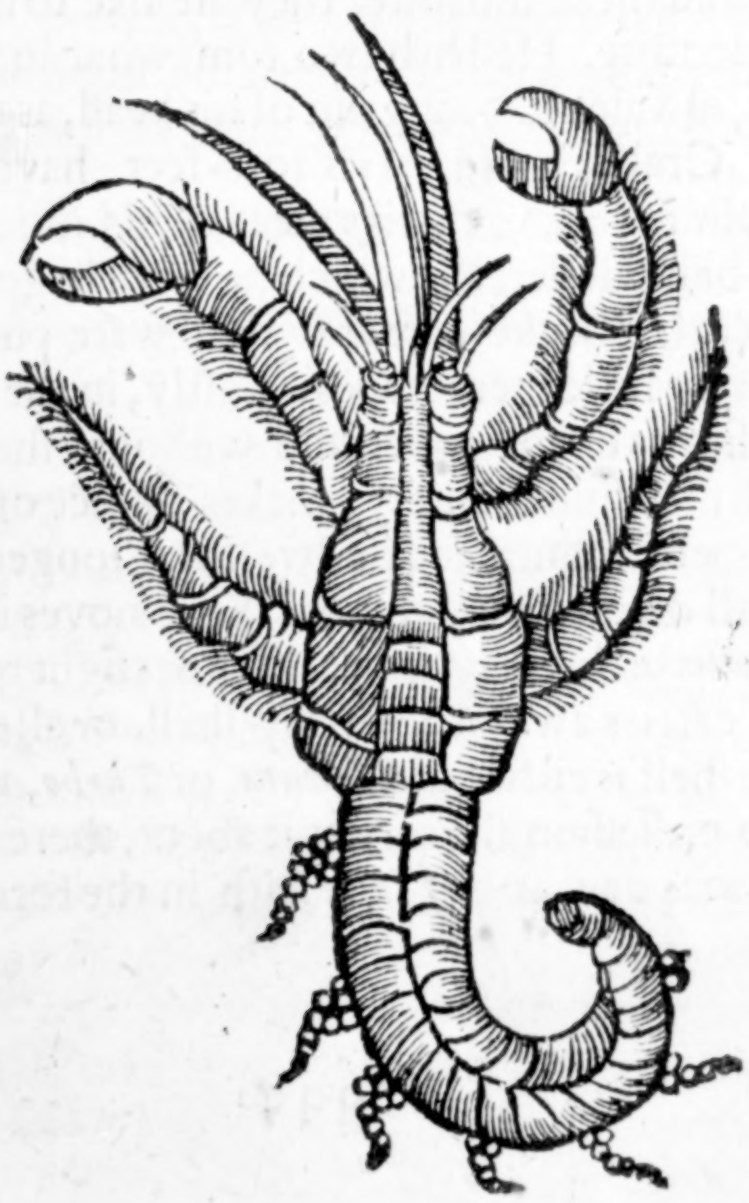
The effigies of the empty ſhells whereinto the Cancelli *uſe to creep to dwell.*



The effigies of Bernard *the Hermite houſed in his ſhell.*



The figure of him out of his Cell.



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Some thinke that this Bernard the Hermite is that kinde of *Cancellus* which is by *Pliny* termed *Pinnoter*; but in truth the *Pinnoter* is not a kinde of *Cancellus* or Cray-fiſh, but of a little Crab. Now in *Ariſtotle* there is much difference betweene *Cancellus* and *Cancer parvus*, though *Pliny* may ſeeme to confound them; for he is bred naked, having his cruſt onely, but without a ſhell: wherefore ſeeing that by nature he wants it, he diligently ſearches for it, and dwells in it, when as he hath found it: But the *Pinnoter* is not bred by it ſelfe alone, but in *Pinnæ* and ſome others, and hee changeth not his habitation, becauſe (as *Ariſtotle* thinks) being of the kind of dwarfe Crabbes, it never growes bigge, neither dwells it in empty ſhells. Now the *Pinna*, or Pinne is a kinde of ſhell-fiſh, it breeds in muddy places, and is alwaies open, neither is it at any time without a companion, which they therefore call the *Pinnoter*, or *Pinnophylax* (*i. e.*) the Pin-keeper, as *Pliny* ſaith. Verily that theſe things are thus, you may plainely perceive by theſe words of *Athenæus*. *Chryſippus Solenſis* 5. *de Honeſt. & Volupt.* ſaith the *Pinna* and *Pinnoter* aſſiſt and further each other, neither can they live aſunder. The *Pinna* may be referred to the kinds of oyſters, but the *Pinnoter* is a dwarfe Crabbe: the *Pinna* opens her ſhell for the little fiſhes to enter thereinto; the *Pinnoter* ſtands by, obſerving if any come in, which if they doe, he gives the Pin notice thereof by biting, who preſently thereupon ſhuts her ſhell, and ſo they feed together upon that they catch by this meanes. Thus *Athenæus*. Shee is alſo for this her craft mentioned by *Plutarch* in his writings. The *Pinnoter* is ſometimes called by *Pliny*, *Cancer dapis aſſectator*.

What the *Pinnoter*, or dwarfe crab is.

What the *Pinna* is.

Lib. 9. *cap.* 42.
Lib. 3. *Deipno.*

The familiarity and craft of the *Pinna* and *Pinnoter*,

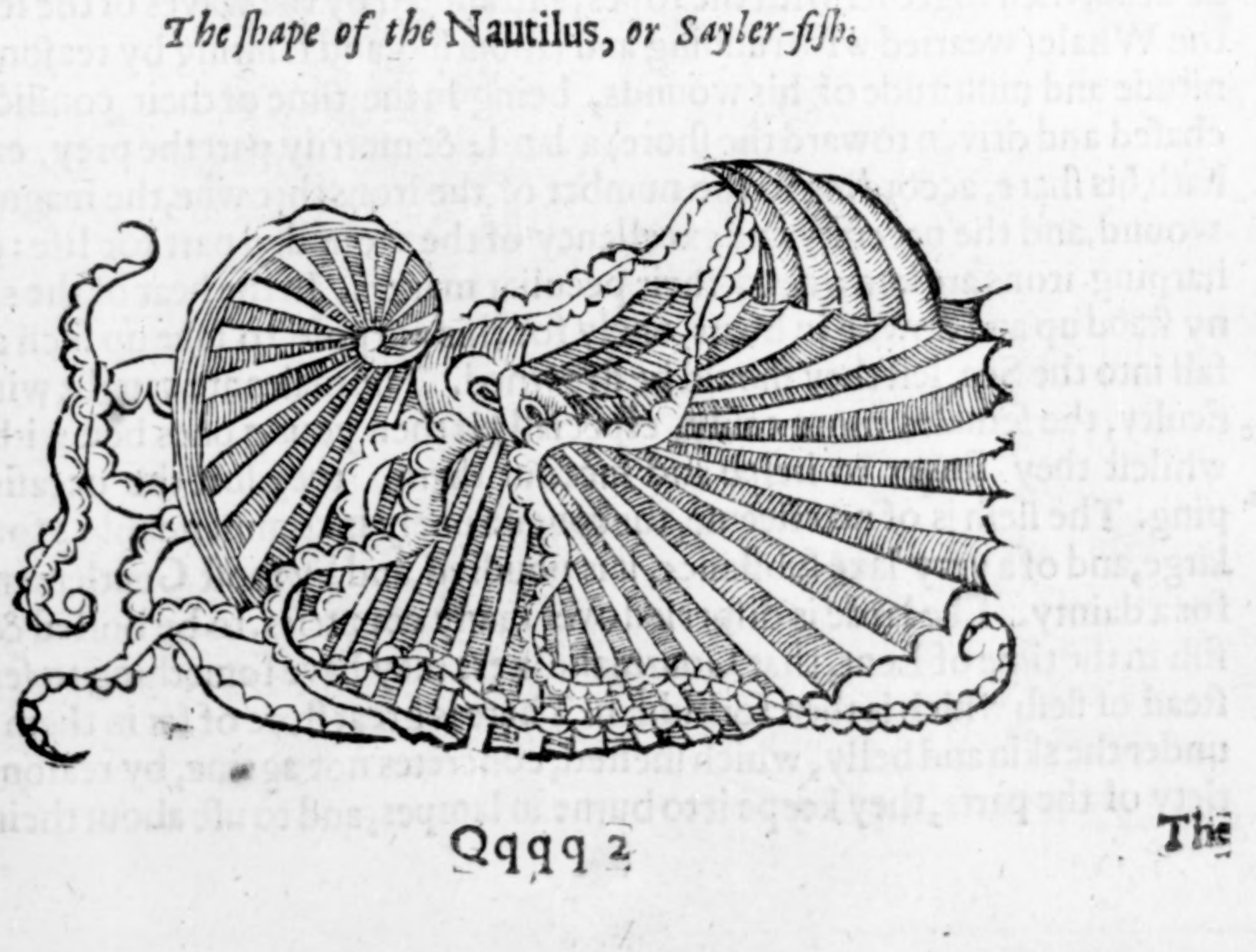
But that which by theſe authors is attributed to the dwarfe Crabbe, the ſame by *Cicero* is aſcribed to the little ſhrimpe: now the *Pinna* (ſaith hee) opening her two large ſhels, enters into confederacy with the little ſhrimp for getting of food, wherefore when little fiſhes ſwimme into her gaping ſhell, then the *Pinna*, admoniſhed by the ſhrimps biting her, ſhuts her ſhell; thus two unlike creatures get their livings together. But *Plutarch* ſeemes to make the *Pinna* to be the Pearle Oiſter, in that work of his, whereas he enquireth whether the craft of Water or Land beaſtes bee the greater.

Lib. 2. *de nat. deorum.*

But amongſt the moſt miraculous fiſhes may fitly bee placed the *Nautilos*, or Sayler, of ſome called *Pompylos* (it is thought to bee a kinde of *Polypus*) it comes with the face upwards to the toppe of the Sea, raiſing it ſelfe by little and little, that caſting forth all the water by a pipe, as if it had a Pumpe, it eaſily floats; then putting backe the two firſt tendrills or armes, it extends betweene them a membrane of wondrous fineneſs or thinneſſe, which gathering aire like as a ſaile, and ſhe rowing with the reſt of her armes, ſhe guides her ſelfe with her taile in the midſt, as a Rudder. Thus ſhee ſailes along in imitation of Pinnaces, and if any thing affright her, ſhe preſently takes in water, and ſinkes herſelfe.

Plin. lib. 9. *cap.* 29.

The ſhape of the Nautilus, *or Sayler-fiſh.*



How the Whale may be reckoned amongſt monſters.

The better to ſtore this treatiſe of Monſters, abuſing the name with the Poets, we will reckon up the whale amongſt the Sea-monſters, by reaſon of his monſtrous and wondrous magnitude. Now the Whale is the greateſt by much of all the fiſhes of the Sea, for moſt commonly this beaſt is thirty ſixe cubits long, eight high, the ſlit of his mouth is eighteene foot long, teeth they have none, but in ſtead thereof in each Jaw horny blacke excreſcences or finnes [which we vulgarly terme Whale-bones] which by little and little end in ſmall haires like to a ſwines briſtles, which comming and ſtanding out of his mouth, are in ſtead of Guides, leſt whileſt he ſwimmes with a blind and rapide violence, he might runne againſt a rocke. His eyes are diſtant one from the other the ſpace of foure elles, which outwardly appeare ſmall, but inwardly they are bigger than a mans head; wherefore they are deceived that ſay that they are no bigger than an Oxes eyes: his noſe is ſhort, but in the middle of his forehead he hath a pipe whereat hee drawes in the aire, and caſts forth a whole ſhower or river of water, that therewith he will even ſinke the veſſels or boats of the Marriners; when hee hath filled himſelfe beyond meaſure, hee cryes or roars with ſo great or ſtrong a voice, that hee may bee heard two miles off. Hee hath two very large finnes upon his ſides wherewith he ſwimmes, and under which in time of danger he hides his young; hee hath none upon his backe. His taile in ſite is like to the tailes of Dolphines, neither is it much unlike in ſhape, which when he moves, hee ſo toſſeth the Sea, that he drownes and overturnes the boats that hee toucheth. You may by diſſecting them finde that a Whale brings forth live young, and gives them ſucke; for the male hath teſticles and a yard, but the female a wombe and dugges. They are taken in divers places about winter, but chiefly about the coaſt of *Aquitaine*, at a ſmall towne which is vulgarly called *Biarris*, ſome ſixe miles diſtant from *Bayon*; whereunto I being ſent by King *Charles* the ninth when he was at *Bayon*, to cure the Prince of *Roche Sur-You*, I was an eye witneſſe how they are caught; and alſo I confirmed that which I had formerly read to that purpoſe, in that excellent and moſt true hiſtory of fiſhes ſet forth by *Rondeletius*. Now at that towne there is a little hill, in the toppe whereof there is a Tower of very great antiquity, from which as from a watch-Tower they keepe watch whether or no any Whales ſwimme that way. Wherefore the watch-men from the tower, either ſeeing, or by the horrible noiſe hearing a Whale to paſſe by that way, they give warning thereof to the inhabitants by the beating of Drums, and ringing a Bell: which ſigne once given, they all runne forthwith, as to extinguiſh the city if it were on fire, being furniſhed with weapons and all things fitting for that purpoſe. For the people of that country are very diligent and expert in catching the Whale. Wherefore in each of the boats furniſhed with all things either to aſſaile or flye, there are put ten luſty rowers, and divers others furniſhed with harping-irons to ſtrike the Whale; which being caſt and faſtened in her, they looſe out huge long ropes faſtened to them, untill ſuch time as he be dead, then together with the ropes, and aſſiſted by the waves of the ſea, they draw the Whale (wearied with running and labouring, and fainting by reaſon of the magnitude and multitude of his wounds, being in the time of their conflict diligently chaſed and driven toward the ſhore) a land; & merrily part the prey, each whereof hath his ſhare, according to the number of the irons throwne, the magnitude of the wound, and the neceſſity and excellency of the wounded part for life: each of their harping-irons are knowne by their peculiar markes. In the heat of the skirmiſh many ſtand up and downe in boats, onely for this purpoſe, to take up ſuch as chance to fall into the Sea, leſt they ſhould be drowned. The males are caught with more difficulty, the females more eaſily, eſpecially if their young ones bee with them; for whileſt they linger to helpe and ſuccour them, they loſe the occaſion of eſcaping. The fleſh is of no eſteeme, the tongue onely is commendable; for being very large, and of a very laxe ſubſtance, it is poudred, and by moſt Gentlemen accounted for a dainty. The larde is diſperſed over many countries, to be boiled & eaten with fiſh in the time of Lent, that Gourmandizers may have ſomething to ſerve them in ſtead of fleſh which is then forbidden. There is great ſtore of fat in them in the parts under the skin and belly, which melted, concretes not againe, by reaſon of the ſubtlety of the parts, they keepe it to burne in lampes, and to uſe about their ſhips. The

A whale brings forth young, & ſuckles them.

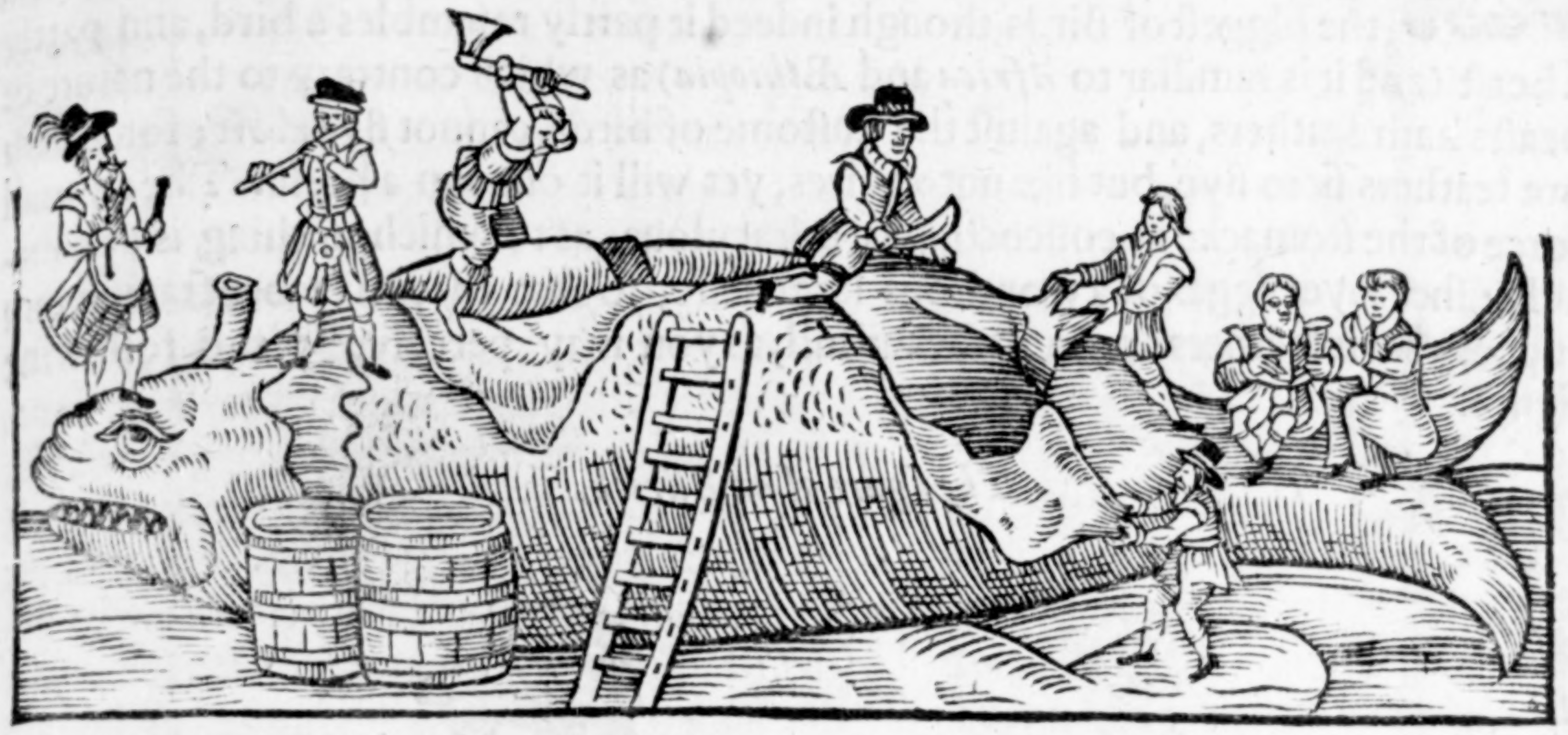
How they are caught.

Why the females are more eaſily caught than the males.

houſes of the fiſh-eaters are builded with their bones; alſo orchards in the coaſt of *Aquitaine* are fenced with theſe bones. The finnes that ſtand forth of their mouths, which are commonly called Whale-bones, being dryed and poliſhed, ſerve to make buskes for women, whip-ſtaves, and little ſtaves, as alſo to ſtiffen garments. Many make ſeats or ſtooles of the *vertebræ*, or ſpondills of the backe-bone.

Whalebone.

The manner of the cutting up of the Whale.



In the river *Scalde*, ten miles from *Antwerpe, Anno Dom.* 1577. the ſecond day of *July*, there was a Whale taken, of a blackiſh blue colour, ſhee had a ſpout hole in the top of her head, out of which ſhee caſt great ſtore of water: ſhe was fifty eight foot long, and ſixteene foot high: her taile was fourteene foot broad; from the eye to the end of her noſe was ſome ſixteene foot. Her lower jaw was ſixe foot on each ſide, ſhe had twenty five teeth, which ſhee could hide in her upper jaw, there being holes for them, it being wholly toothleſſe; for which one thing this Whale may bee judged monſtrous, for that nature hath denied them teeth, and for that in creatures that are not horned, it is ſo ordained by nature, that when they have teeth in their lower jaw, they ſhould have others alſo in the upper to anſwer to them, ſo to chaw their meat. The longeſt of theſe teeth exceeded not ſixe inches.

There is (as *Pliny* reports) a very ſmall fiſh accuſtomed to live about rocks, it is called *Echeneis*, never exceeding the length of a foot; it is thought that ſhippes goe more ſlowly if this ſtick to them: wherefore the Latines have alſo given it the name of *Remora*, for that a ſhip being under ſaile with a good wind, may by the *Echeneis* ſeazing on her as if ſhe would devoure her, be ſtayed againſt the Saylers wills, and ſtand ſtill as if ſhe were in a ſafe harbour. Wherefore ſhee is ſaid in the Actian fight to have ſtayed the ſhip of *Marcus Antonius*, haſtening to goe about and encourage his ſouldiers, ſo that he was forced to enter into another ſhip, and thereupon *Cæſars* navie came upon them too haſtily, and before they were provided.

Lib. 9. cap. 25. & lib. 32. ca. 1.

The wondrous power of the *Remora*.

Shee alſo ſtaid the ſhip of the Emperour *Caius*, comming from *Aſtura* to *Antes*, his ſhip of all the navie making no way; neither did they long wonder at this ſtay, the cauſe being preſently knowne; ſome forthwith leaping into the Sea to finde the cauſe thereof, there found her about the ſhip, even ſticking to the Rudder, and they ſhewed her to *Caius*, being wrath that this ſo ſmall a thing ſhould ſtoppe him, and countermaund the endeavour of forty Rowers.

Therefore this little fiſh tames and infringes the violence and madneſſe of the world, & that with no labour, not with holding or any other way, but only by ſticking thereto. Certainly how ever it comes to paſſe, who from this example of holding of ſhips, can doubt of any power or effect of nature, in medicines which grow naturally? Yea & without this example, the *Torpedo* out of the ſea alſo may be ſufficient, who a farre off, and at a diſtance, if it be touched with a ſpeare or rod, will benumbe even the ſtrongeſt armes, and retarde the feet, how ever nimble to runne away.

The wondrous force of the *Torpedo*.

CHAP. XXII.

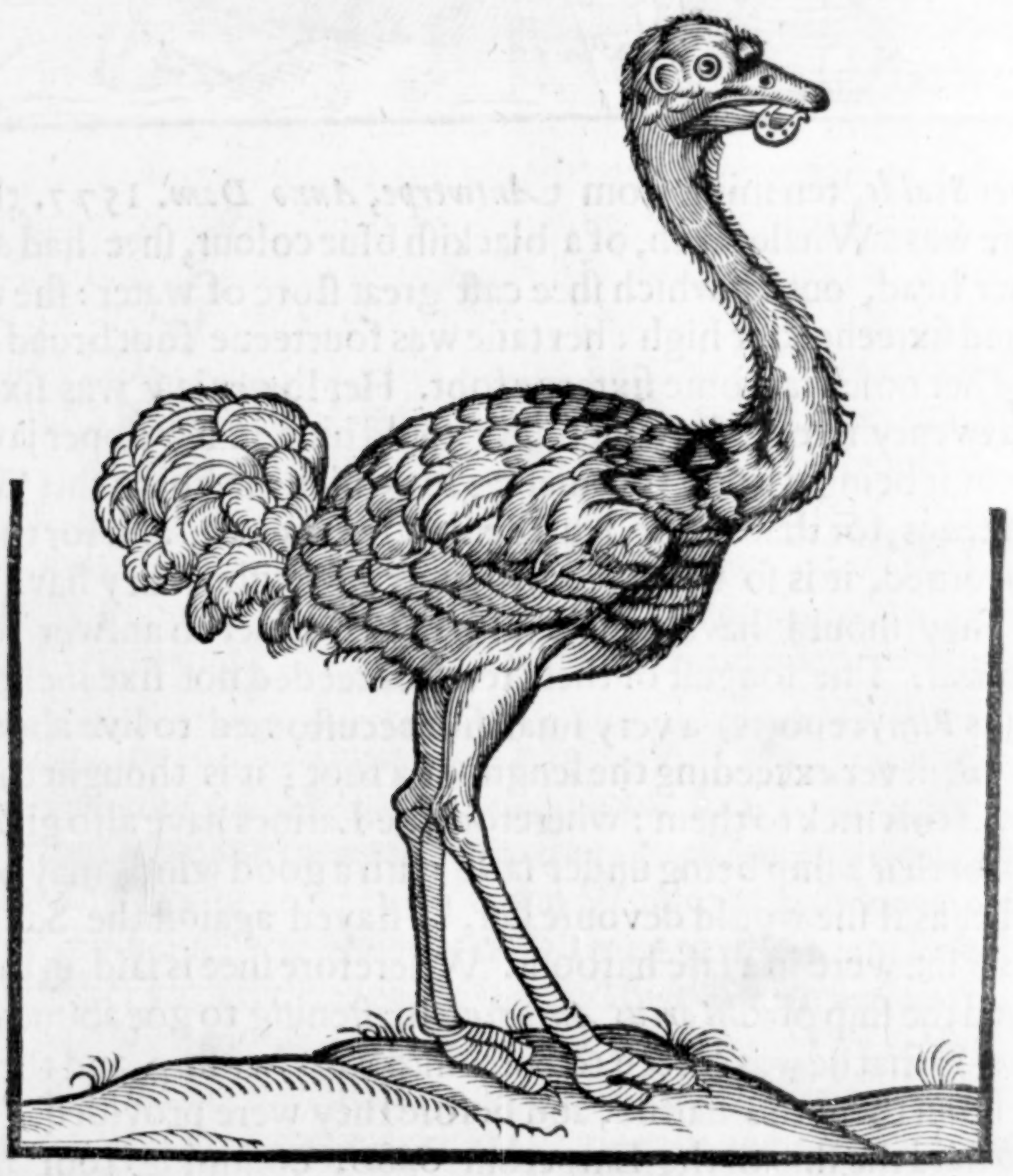
Of the admirable nature of Birds, and of ſome Beaſts.

THAT there bee divers things not onely in the Sea, but alſo in the aire, and earth, which by the wonderfull condition of their nature may equall that of Monſters, the onely Eſtrich may ſerve for a witneſſe. It is the biggeſt of Birds, though indeed it partly reſembles a bird, and partly a beaſt (and it is familiar to *Africa* and *Æthiopia*) as which contrary to the nature of beaſts hath feathers, and againſt the cuſtome of birds, cannot flye aloft; for it hath not feathers fit to flye, but like unto haires, yet will it out-run a horſe. The naturall force of the ſtomacke in concocting is miraculous, as to which nothing is untameable: ſhee layes egges of a wondrous largeneſſe, ſo that they may bee framed into cuppes: their feathers are moſt beautifull, as you may perceive by this following figure.

The Eſtrich is betweene a bird and a beaſt.

The wondrous force of her ſtomacke.

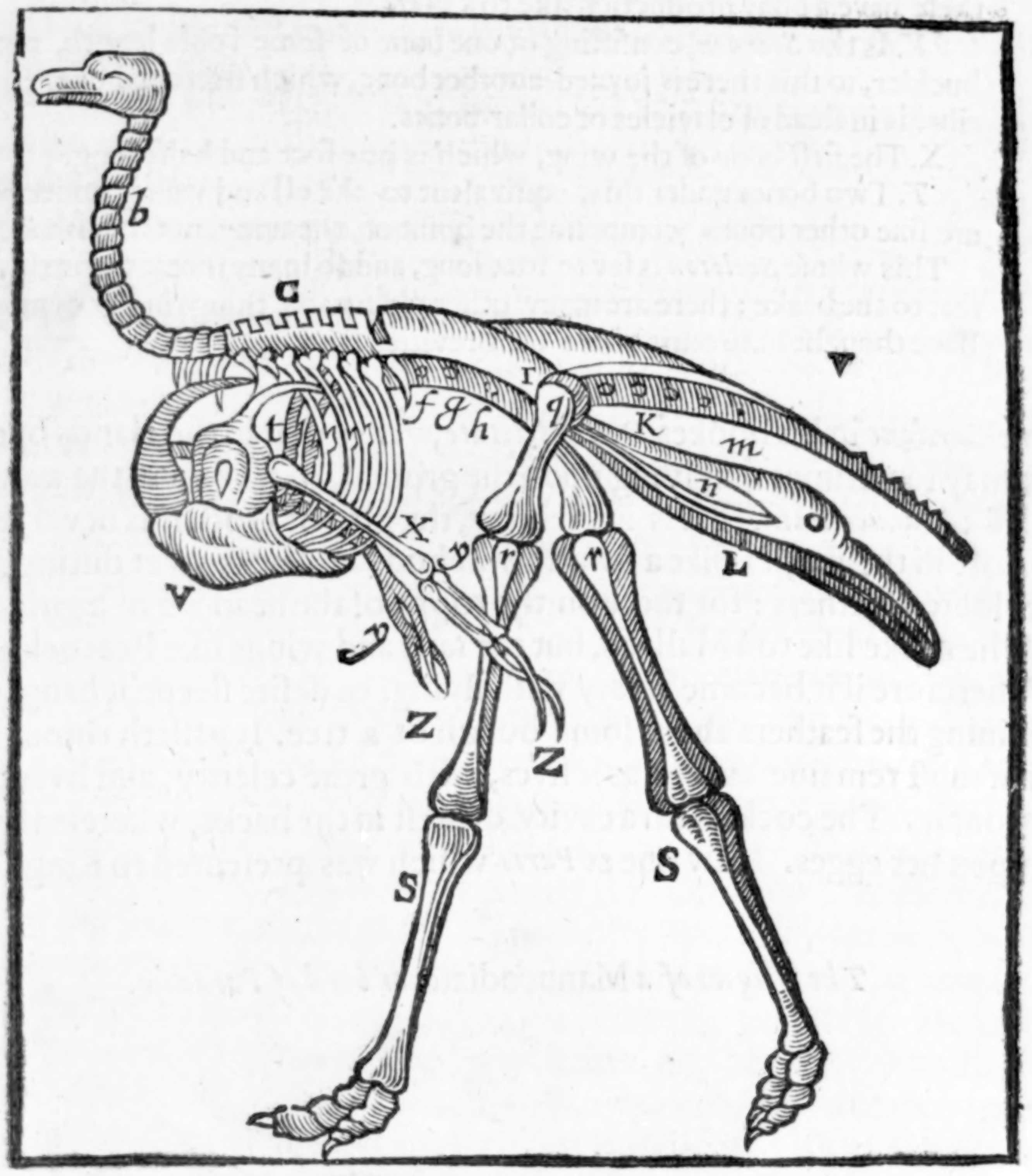
The figure of an Eſtrich.



Any one may eaſily gather of what a prodigious magnitude an Eſtrich is, by the greatneſſe of his bones. Three of theſe birds were kept at the Kings charge, by the *Mareſchall de Rets*: one whereof dying, it was beſtowed upon mee, whereof I have with great diligence made a *Sceleton*.

The

The delineation of the Sceleton of an Eſtrich.



A. Shewes the head, which was ſomewhat thicker than the head of a Crane; of the length of ones hand, plaine from the crowne even to the beake; the beake being divided to the middle region of the eye, being roundiſh at the end thereof.

B. The necke, a yard long, conſiſting of ſeventeene *vertebræ*, each whereof on each ſide is furniſhed with a tranſverſe proceſſe looking downewards, of ſome fingers length, excepting the two which are next the head, as which want theſe, and are joyned together by *Ginglymos*.

C. The backe is of a foots length, conſiſting of ſeven *Vertebræ*.

D, The holy-bone of two foot long, in whoſe top there is a tranſverſe proceſſe, under which there lyes a great hole.

E. Three more, but leſſe.

F. G. H After which there followes the cavity or ſocket, whereinto the head of the thigh-bone is received and hid. This externally and on the ſide produceth a perforated bone, noted with the letter, *I*. perforated I ſay at the beginning, for it is preſently united at the letter, *K*. then is it forked and divided into two other bones, whereof one is bigger than the other. The leſſe is noted with the letter, *L*. then are they both united at the letter *M*. each of them is halfe a foot and foure inches long. But from that part whereas they firſt begun to bee divided, to that whereas they are united, there is a hole ſome foure fingers broad, but the length of ones hand, or more, and it is noted with the letter, *N*. The reſidue of the bone is like to a pruning knife three inches broad, but ſixe in length: at the end whereunder is the letter, *O*. it is joyned by coalition.

P. The rumpe conſiſting of nine *vertebræ*, like to a mans. The thigh-bones are two, whereof that which is noted with the letter *Q*. is of the length of a foot, and of thickeneſſe equall to a horſes thigh. The other next under (which peradventure you may call the legge-bone) noted with *R*. is a foot and halfe long: it hath joyned thereto the *Fibula*, or leſſer focile of the like length, but which growes ſmaller as it comes lower.

S. Is the legge, to which the foot adheres, being one foot and a halfe long, divided at the end into two clawes, the one bigger, the other leſſe, whereof each conſiſts of three bones.

T. Eight ribbes, which are inſerted into the *Sternon*, the three middlemoſt of theſe have a bony production like to a hook.

V. Is the *Sternon*, conſiſting of one bone of ſome foots length, repreſenting a buckler, to this there is joyned another bone, which ſtretched over the three firſt ribs, is in ſtead of clavicles or collar-bones.

X. The firſt bone of the wing, which is one foot and halfe long.

Y, Two bones under this, equivalent to the ell and wand, under which there are ſixe other bones compoſing the point of the wing, noted with *Z*.

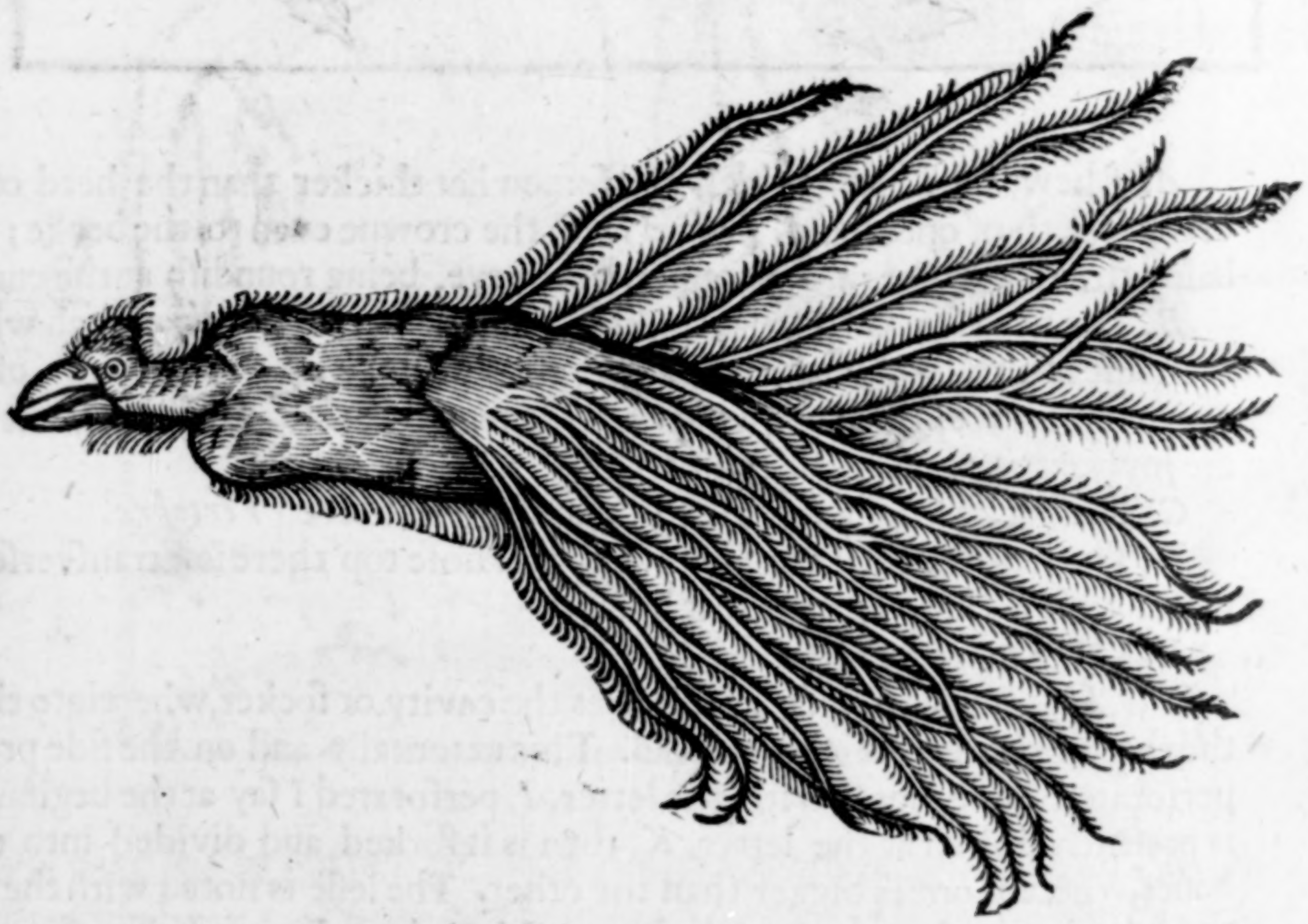
This whole *Sceleton* is ſeven foot long, and ſo many foot or more high from the feet to the beake: there are many other obſervable things in her compoſure, but I have thought fit to omit them for brevities ſake.

The deſcription of the bird of Paradiſe.

* Whoſoever deſires to know more of the truth of this bird, let him read *Cluſius* in the *Auctarium ad lib. 5. cap. 1. exoticorum.*

Jerome Cardane in his bookes *De ſubtilitate*, writes that in the Ilands of the *Molucca's*, you may ſometimes find lying upon the ground, or take up in the waters, a dead bird called a *Manucodiata*, that is in Hebrew, the bird of God, it is never ſeene alive. It lives aloft in the aire, it is like a Swallow in body and beake, yet diſtinguiſhed with divers coloured feathers: for thoſe on the toppe of the head are of a golden colour, thoſe of the necke like to a Mallard, but the taile and wings like Peacocks; * it wants feet: Wherefore if it become weary with flying, or deſire ſleepe, it hangs up the body by twining the feathers about ſome bough of a tree. It paſſeth through the aire, wherein it muſt remaine as long as it lives, with great celerity, and lives by the aire and dew onely. The cocke hath a cavity depreſt in the backe, wherein the hen laies and ſits upon her egges. I ſaw one at *Paris* which was preſented to King *Charles* the ninth.

The effigies of a Manucodiata, *or bird of Paradiſe.*



Tom. 2. lib. 21. cap. 12.

Wee have read in *Thevets* Coſmography, that he ſaw a bird in *America*, which in that country ſpeech is called *Touca*, in this very monſtrous & deformed, for that the beake in length and thickeneſſe, exceeds the bigneſſe of the reſt of the body; it feeds on pepper, as the black-birds and felfires with us do upon Ivie berries, which are not leſſe hot than pepper.

A certaine Gentleman of *Provence* brought a bird of this kinde from that country, to preſent it to King *Charles* the ninth, but dying in the way he could not preſent it alive. Wherefore the King wiſhed the *Mareſchal de Rets* to give her to me, that I might

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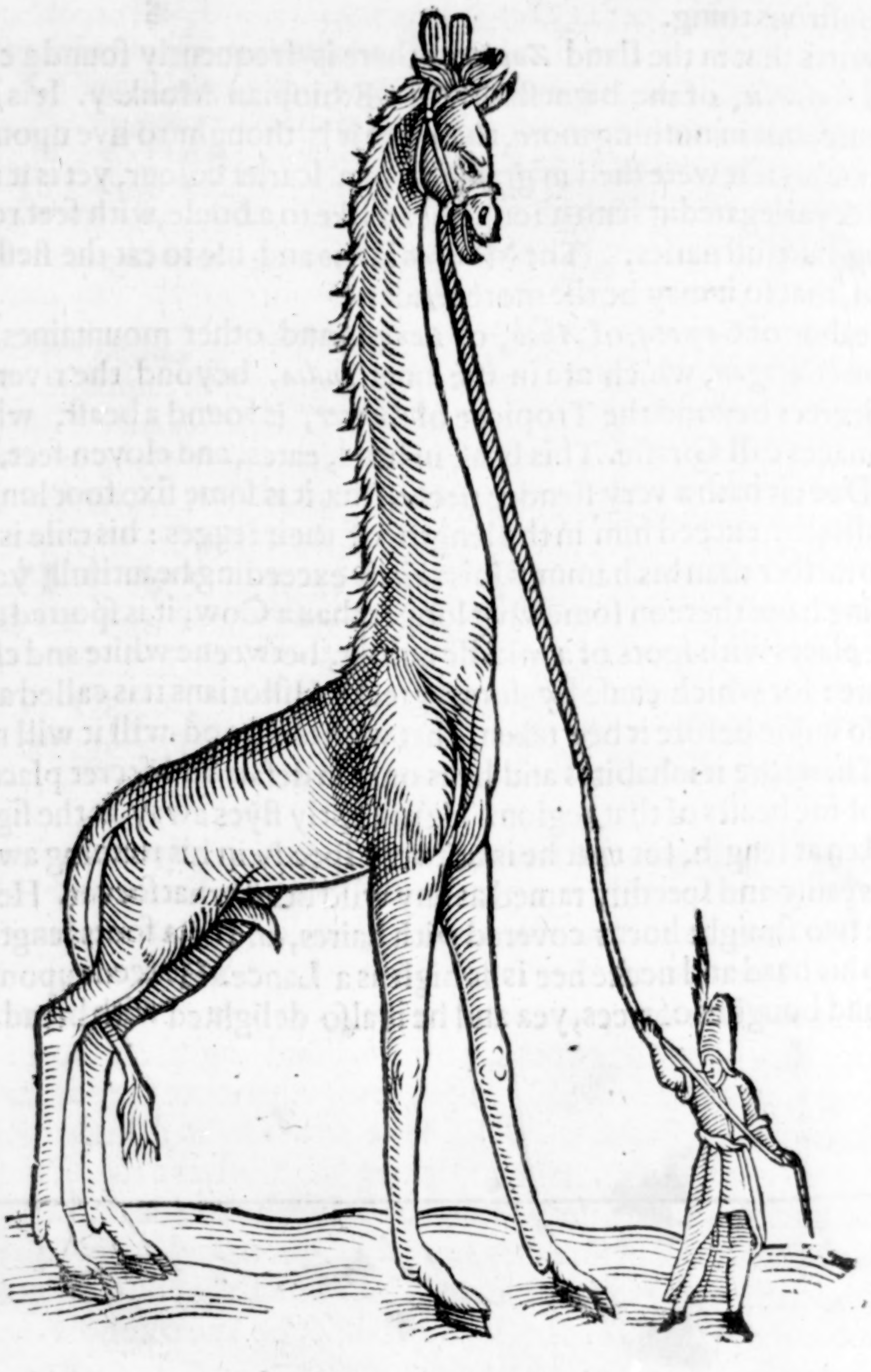
might take forth her bowells and embalme her, that ſhe might bee kept amongſt the Kings rarities. I did what I could, yet not long after ſhe rotted: ſhe reſembled a crow in body and feathers, but had a yellowiſh beake, cleere, ſmooth, and toothed like a ſaw, and of ſuch length and thickeneſſe as we formerly mentioned. I keep it yet as a certaine monſtrous thing.

Thevet writes that in the Iland *Zocotera* there is frequently found a certaine wild beaſt called *Hulpalis*, of the bigneſſe of an Æthiopian Monkey. It is a very monſtrous creature, but in nothing more, than that it is thought to live upon the aire only; the skinne, as if it were died in graine, is of a ſcarlet colour, yet is it in ſome places ſpotted & variegated: it hath a round head like to a boule, with feet round, broad, and wanting hurtfull nailes. The Moores kill it and uſe to eat the fleſh of it, being firſt bruiſed, that ſo it may be the more tender.

Tom. 1. cap. 11. lib. 4.

In the Realme of *Camota*, of *Ahob*, of *Benga*, and other mountaines of *Cangipa, Plimatiq, and Catagan*, which are in the inner *India*, beyond the river of *Ganges*, ſome five degrees beyond the Tropicke of *Cancer*, is found a beaſt, which the weſterne Germanes call Giraffe. This beaſt in head, eares, and cloven feet, is not much unlike our Doe; it hath a very ſlender necke, but it is ſome ſixe foot long, and there are few beaſts that exceed him in the length of their legges: his taile is round, but reacheth no further than his hammes, his skin is exceeding beautifull, yet ſomewhat rough, having haire thereon ſomewhat longer than a Cow, it is ſpotted and variegated in ſome places with ſpors of a middle colour, betweene white and cheſnut, ſo as Leopards are: for which cauſe by ſome greeke Hiſtorians it is called a *Cameleopardalis*: it is ſo wilde before it bee taken, that with the good-will it will not ſo much as be ſeen. Therefore it inhabites and lives only in deſart and ſecret places, unknown to the reſt of the beaſts of that region. He preſently flyes away at the ſight of a man, yet is he taken at length, for that he is not very ſpeedy in his running away; once taken, he is as eaſily and ſpeedily tamed as any wild beaſt whatſoever. He hath above his crowne two ſtraight horns covered with haires, and of a foots length. When as he holds up his head and necke hee is as high as a Lance. He feeds upon herbes, and the leaves and boughes of trees, yea and he is alſo delighted with bread.

Thevet tom. 1. lib. 11. cap. 13.


The effigies of a Giraffa.

Such as ſaile in the red ſea alongſt the coaſt of *Arabia*, meet with an Iland called by the *Arabians Cademota*; in that part thereof where the river *Plata* runnes, is found a wild beaſt, called by the barbarous inhabitants *Paraſſoupi*, being of the bigneſſe of a Mule, headed not unlike one, yet rough and haired like to a Beare, but not of ſo dark a colour, but inclining to yellow, with cloven feet like a Hart: ſhee hath two long hornes on her head, but not branched, ſomewhat reſembling thoſe ſo much magnifyed hornes of Unicornes. For the natives of the place, bitten by the venemous tooth of either beaſt or fiſh, are preſently helped and recover by drinking the water wherein ſuch hornes have beene infuſed for ſixe or ſeven dayes ſpace, as *Thevet* in his Coſmography reports.

In one of the Ilands of the *Molucca's* there is found a Beaſt living both on land and water like as a Crocodile; it is called *Camphurch*, it is of the bigneſſe of an Hart, it hath one horne in the forehead, moveable after the faſhion of the noſe of a Turkycocke: it is ſome three foot and an halfe long, and never thicker than a mans arme; his neck is covered over with haire of an aſh colour, he hath two feet like to a gooſes feet, wherwith he ſwims both in freſh and ſalt waters. His fore feet are like to a ſtags, he lives upon fiſh. Many have perſwaded themſelves that this beaſt is a kind of Unicorne, and that therefore his horne ſhould bee good againſt poyſons. The King of the Iland loves to be called by the name of this beaſt; and ſo alſo other Kings take to themſelves the names of the wilde beaſts, fiſhes, or fruits, that are moſt pretious and obſervable in their dominions, as *Thevet* reports.

Mauritania and *Æthiopia*, and that part of *Africke* that is beyond the deſarts and ſyrtes, bring forth Elephants; but thoſe of *India* are farre larger. Now although in the largeneſſe of their body they exceed all foure footed beaſts, yet may they bee more ſpeedily and eaſily tamed than other beaſts. For they may be taught to doe many things above the common nature of beaſts. Their skin is ſomewhat like to a Buffles, with little haire upon it, but that which is, is aſh coloured, his head large, his necke ſhort, his eares two handfulls broad, his noſe or trunke very long, and hanging down almoſt to the ground, hollow like as a trumpet, the which he uſeth in ſtead of an hand, his mouth is not farre from his breaſt, not much unlike a ſwines, from the upper part whereof two large teeth thruſt forth themſelves, his legges are thicke and ſtrong, not conſiſting of one bone as many formerly have falſly believed (for they kneele to admit their Rider, or to bee laden, and then riſe up againe of themſelves) his feet are round like a quoit ſome two or three hands breadth, and divided into five clefts. He hath a taile like a Buffle, but not very rough, ſome three hands breadth long, wherefore they would be much troubled with flyes and waſpes, but that nature hath recompenced the ſhortneſs of their tailes by another way; for when they finde themſelves moleſted, they contract their skin ſo ſtrongly, that they ſuffocate and kill theſe little creatures taken in the wrinkles thereof; they overtake a man running by going onely, for his legges are proportionable to the reſt of his body.

The Indian Elephants are bigger than the Africans.

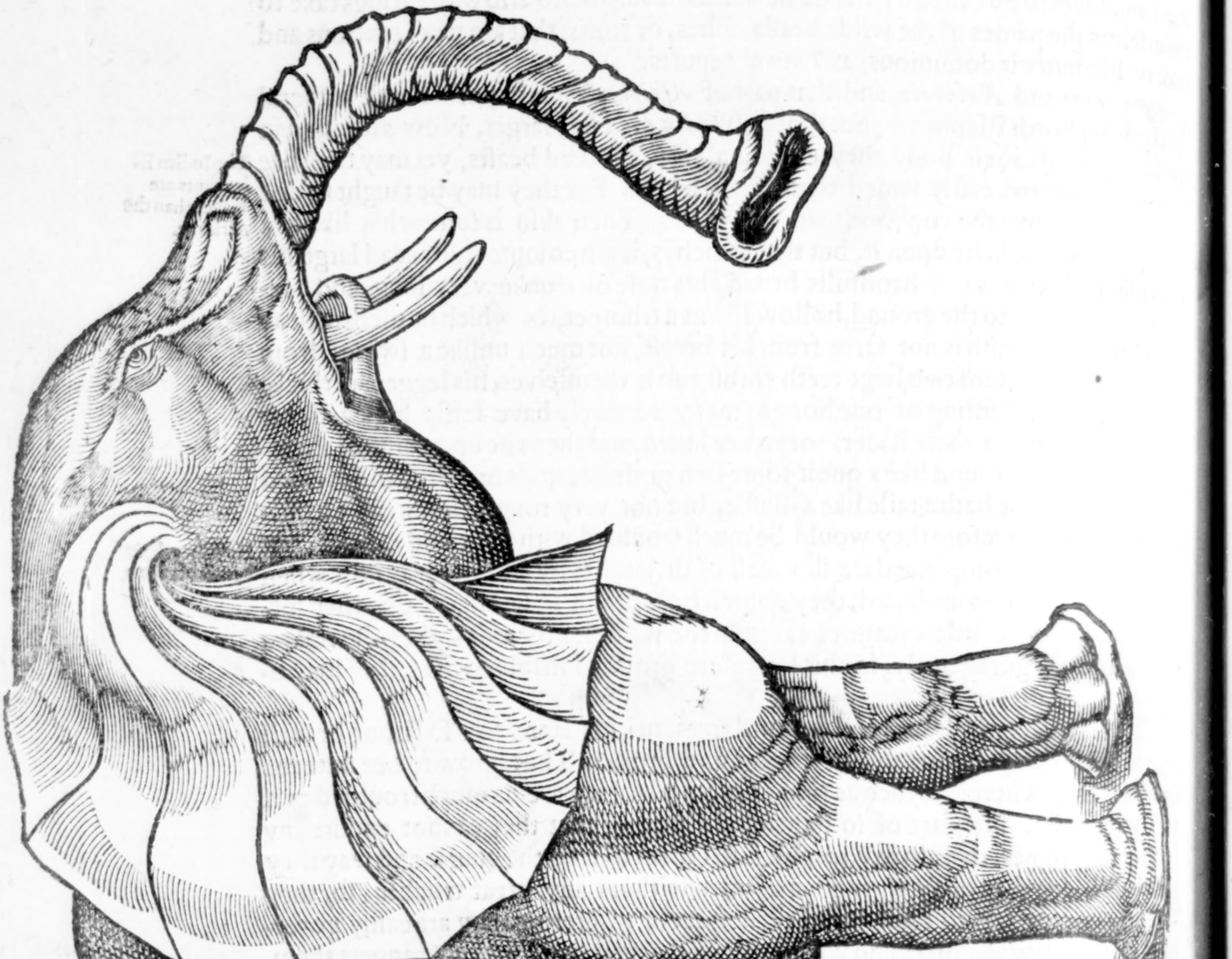
How they keep flyes from them

They feed upon the leaves and fruits of trees, neither is any tree ſo ſtrong or well rooted, which they cannot throw downe and breake. They grow to bee ſixteene handfulls high, wherefore ſuch as ride upon an Elephant are as much troubled as if they went to ſea. They are of ſo unbridled a nature, that they cannot endure any head-ſtall or reines, therefore you muſt ſuffer them to take the courſe and way they pleaſe. Yet doe they obey their country men without any great trouble; for they ſeeme after ſome ſort to underſtand their ſpeech, wherefore they are eaſily governed by their knowne voices and words. They throw down a man that angers them, firſt taking him up with their Trunke and lifting him aloft, and then letting him fall, they tread him under foot, and leave him not before he bee dead. *Ariſtotle* writes that Elephants generate not before they be twenty yeeres old: they know not adultery, neither touch they any female but one, from which they alſo diligently abſtain when they know ſhe hath once conceived. It cannot be knowne how long they goe with young; the reaſon is for that their copulation is not ſeen, for they never do it but in ſecret. The females bring forth reſting upon their hinde legges, and with paine like women, they licke their young, and theſe preſently ſee and goe, and ſucke with their mouths, and not with their Trunkes. You may ſee Elephants teeth of a monſtrous and ſtupendious bigneſſe, at *Venice*, *Rome*, *Naples*, and *Paris*; they terme it Ivory, and it is uſed for Cabinets, Harps, Combes, and other ſuch like uſes.

Lib. 9. de hiſt. anim. cap. 27.

It is not knowne how long an Elephant goes with young.

The figure of an Elephant.



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We have read in *Thevet*, that in *Florida* there are great Bulls, called in that country tongue *Beautrol*, they have hornes of a foot long, a bunch on their backe like a Camell, their haire long and yellow, the taile of a Lion; there is ſcarce any creature more fierce or wild, for it can never be tamed unleſſe it be taken from the dam. The Salvages uſe their Hides againſt the cold, and their hornes as an Antidote againſt poyſon.

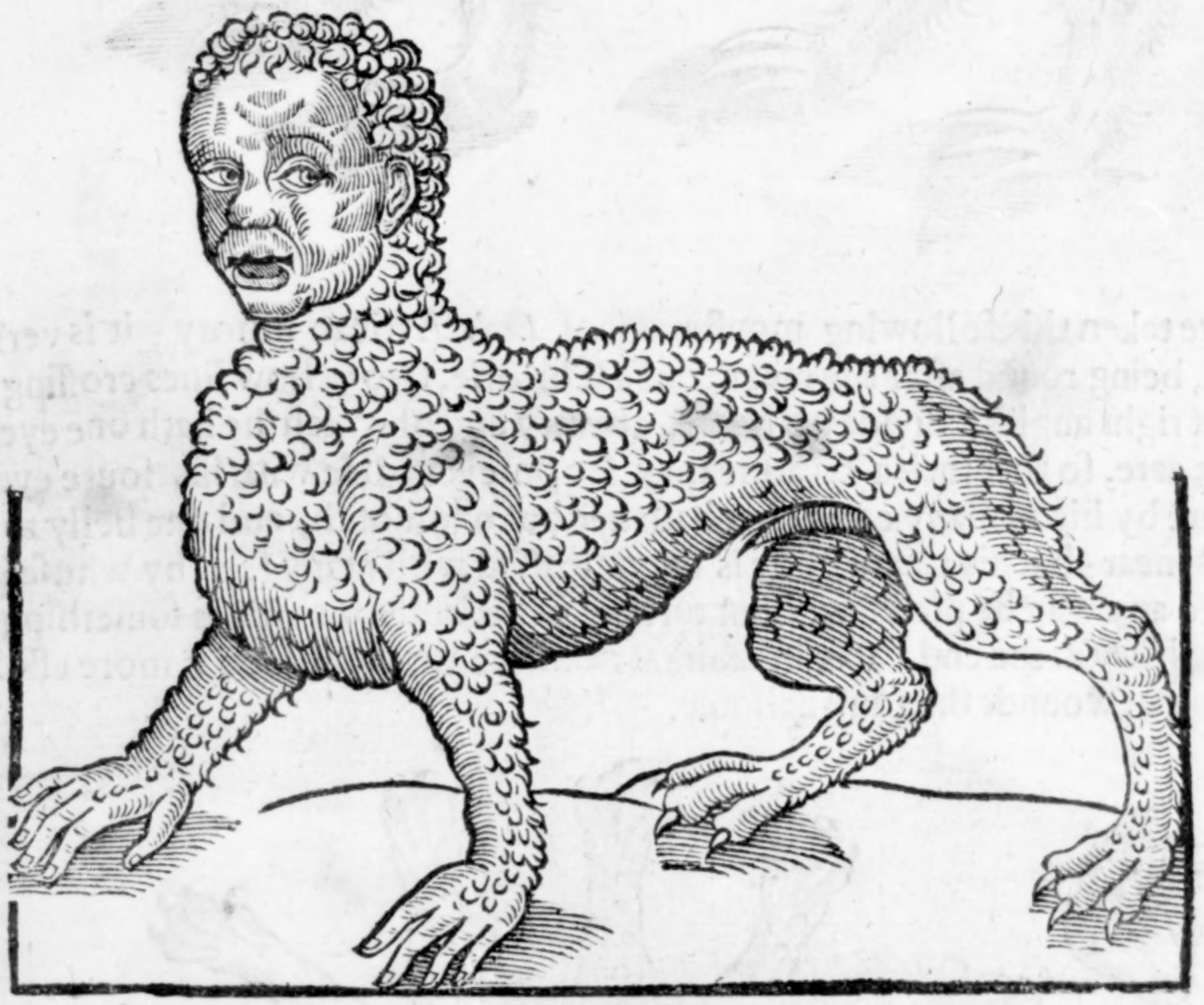
Tom. 2, lib. 23. cap. 2.

Their hornes good againſt poyſons.

Tom. 1. lib. 2. cap. 10.

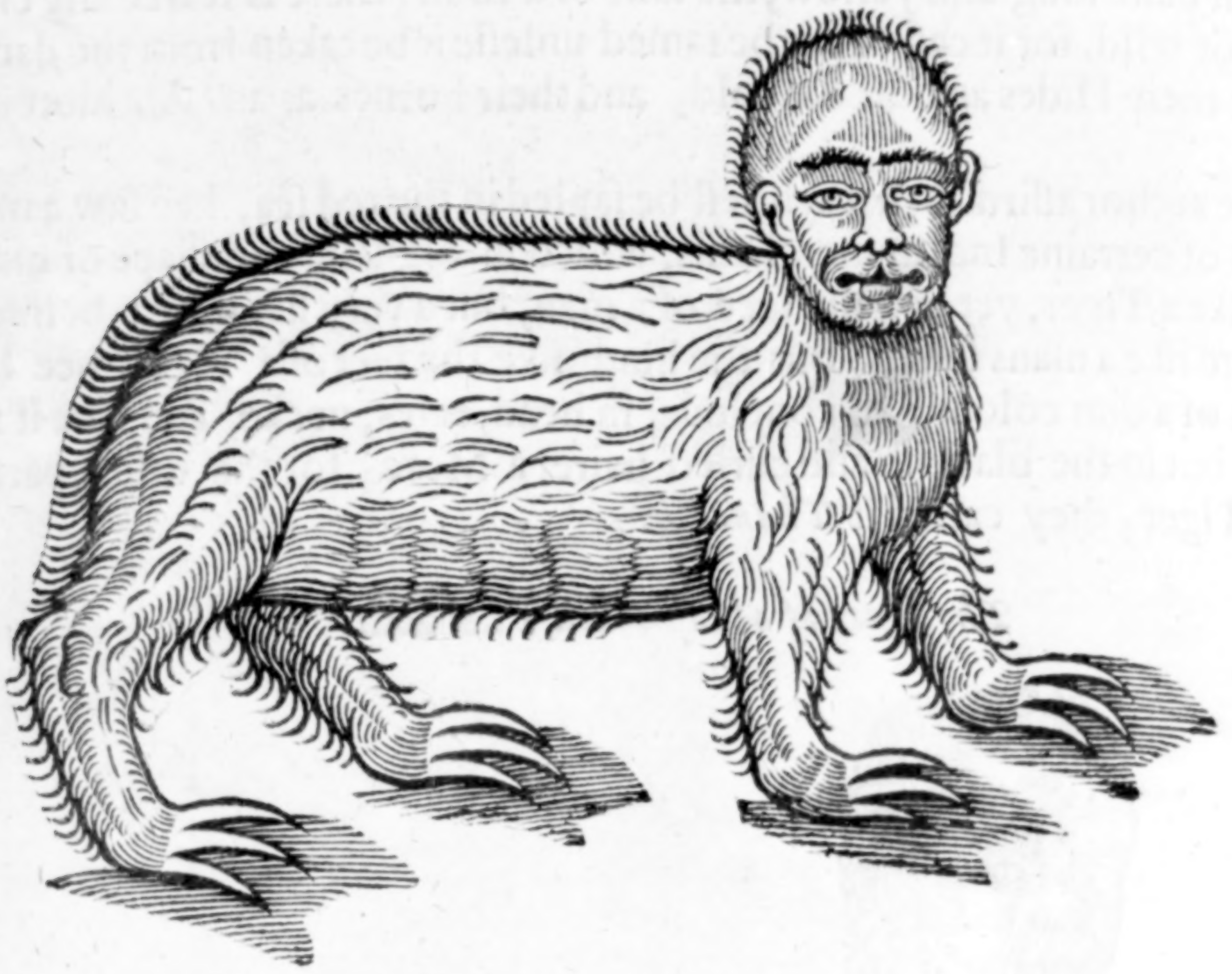
The ſame author affirmes that whileſt he ſayled in the red ſea, hee ſaw a monſter in the hands of certaine Indian merchants, which in bigneſſe and ſhape of his limbs was not unlike a Tiger, yet had the face of a man, but a very flat noſe: beſides, his fore feet were like a mans hands, but the hinde like the feet of a Tiger, hee had no taile, he was of a dun colour: to conclude, in head, eares, necke, and face it reſembled a man, but in the blackiſh and curled haire, a More; for the other parts they were like a Tiger; they called it *Thanacth*.

The figure of a beaſt called Thanacth.

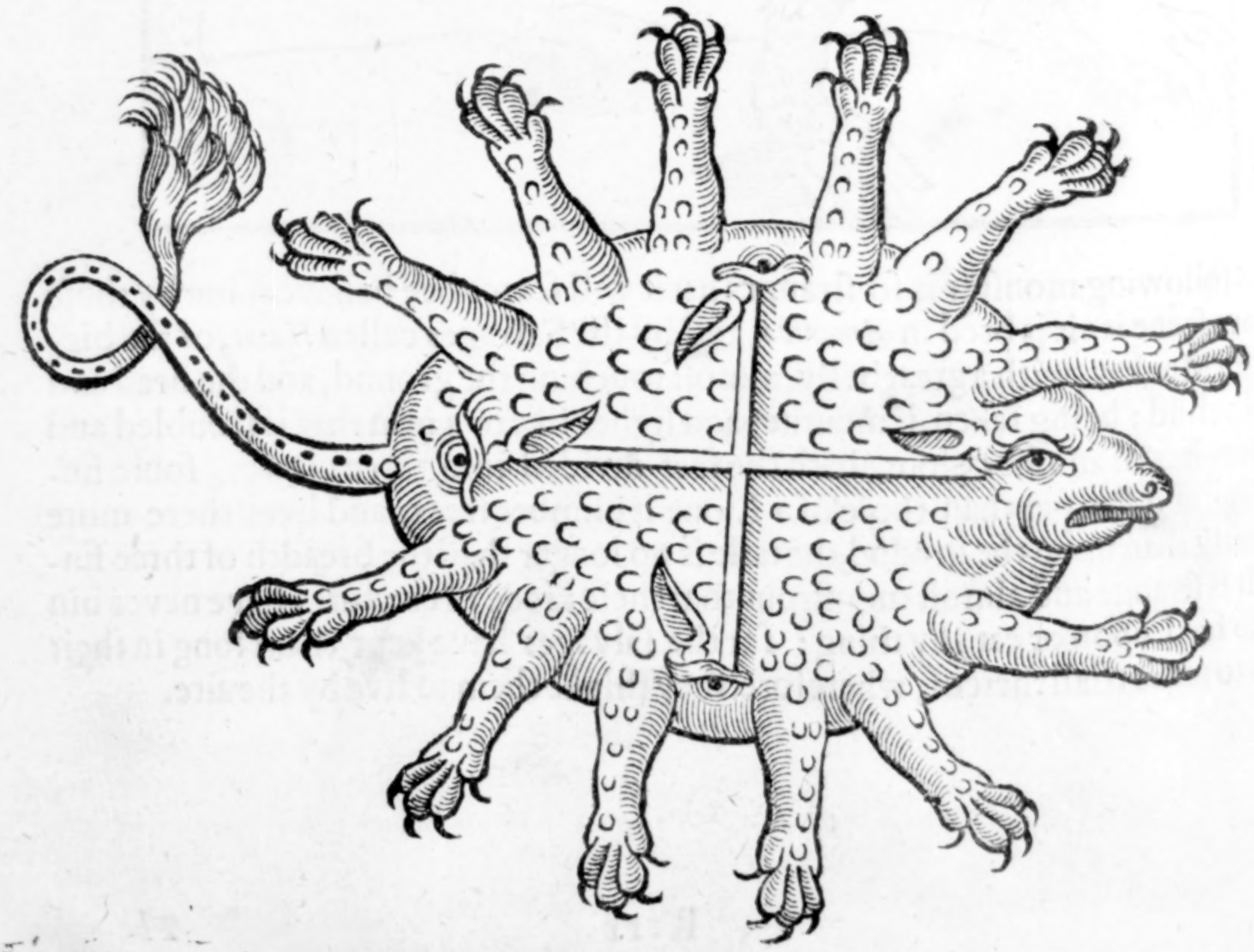


This following monſter is ſo ſtrange that it will ſcarce bee believed, but by thoſe that have ſeene it: it is bred in *America*, and by the Salvages called *Haiit*, of the bigneſſe of a Monkey, with a great belly, almoſt touching the ground, and the head and face of a child: being taken, it mournes and ſighes like to a man that is troubled and perplext; it is of an aſhe colour, hath the feet divided into three clawes, foure fingers long, and ſharper than thoſe of a Lion: it climbes trees, and lives there more frequently than upon the ground, the taile is no longer than the breadth of three fingers. It is ſtrange and almoſt monſtrous that theſe kinde of creatures have never bin ſeene to feed upon or eat any thing: for the ſalvages have kept them long in their houſes to make triall thereof, wherefore they thinke them to live by the aire.

The figure of a beaſt called Haiit.

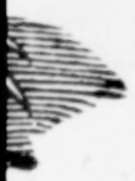


I have taken this following monſter out of *Leo's* African hiſtory; it is very deormed, being round after the manner of a Tortoiſe, two yellow lines croſſing each fother at right angles, divide his backe, at every end of which he hath one eye, and alſo one eare, ſo that ſuch a creature may ſee on every ſide with his foure eyes, as alſo heare by his ſo many eares: yet hath hee but one mouth, and one belly to containe his meat; but his round body is encompaſſed with many feet, by whoſe helpe he can go any way he pleaſe without turning of his body, his taile is ſomething long and very hairy at the end. The inhabitants affirme that his blood is more effectuall in healing of wounds than any balſome. Blood as good as balſome.



Plin. lib. 8. *cap*, 29. It is ſtrange that the *Rhinoceros* ſhould be a born enemy to the Elephant; wherfore he whets his horne, which growes upon his noſe, upon the rockes, and ſo prepares himſelfe for fight, wherein he chiefly aſſailes the belly, as that which he knowes to be the ſofteſt: he is as long as an Elephant, but his legs are much ſhorter, he is of the colour of box, yet ſomewhat ſpotted. *Pompey* was the firſt that ſhewed one at *Rome.*

The



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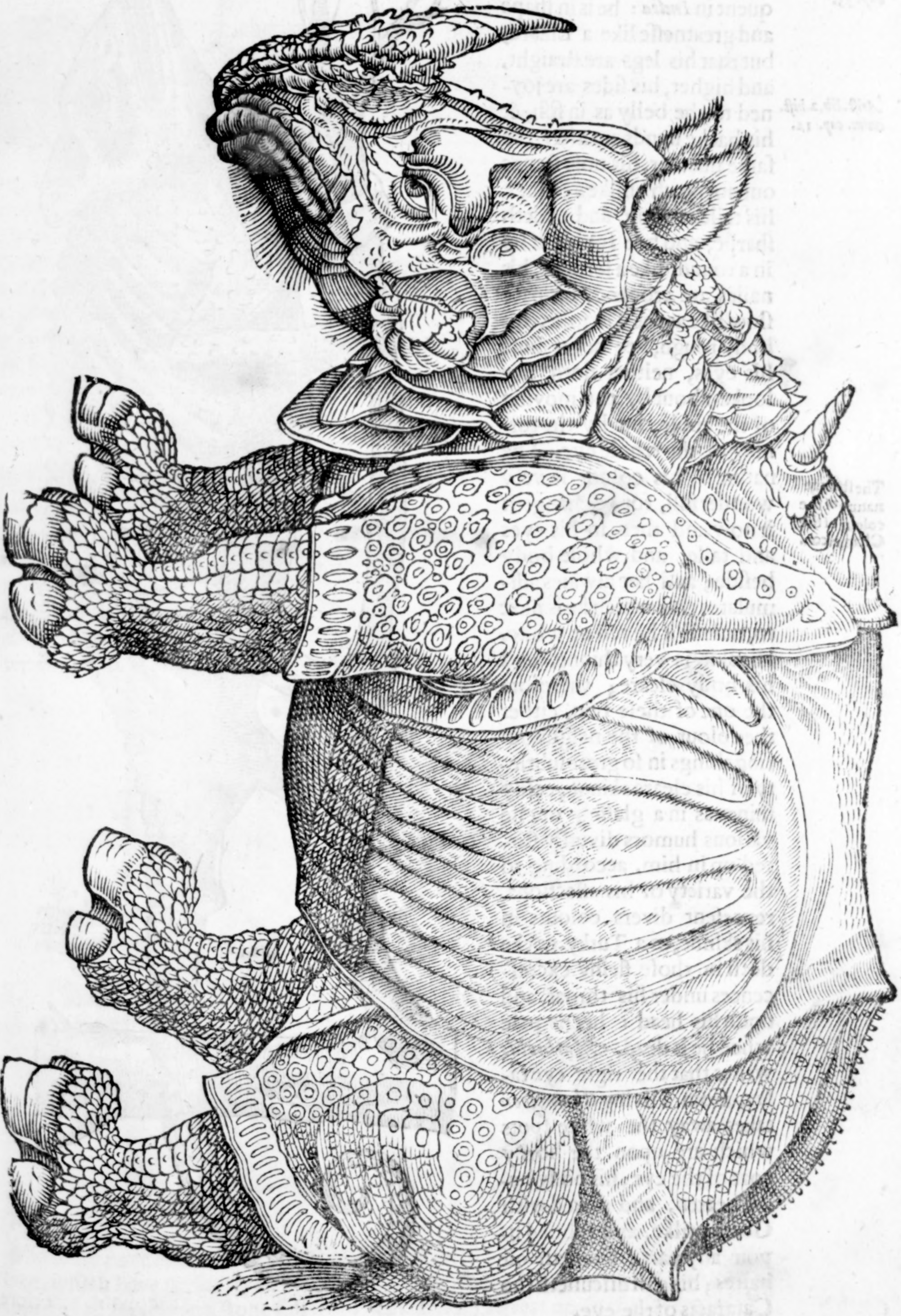
The effigies of a Rhinoceros.



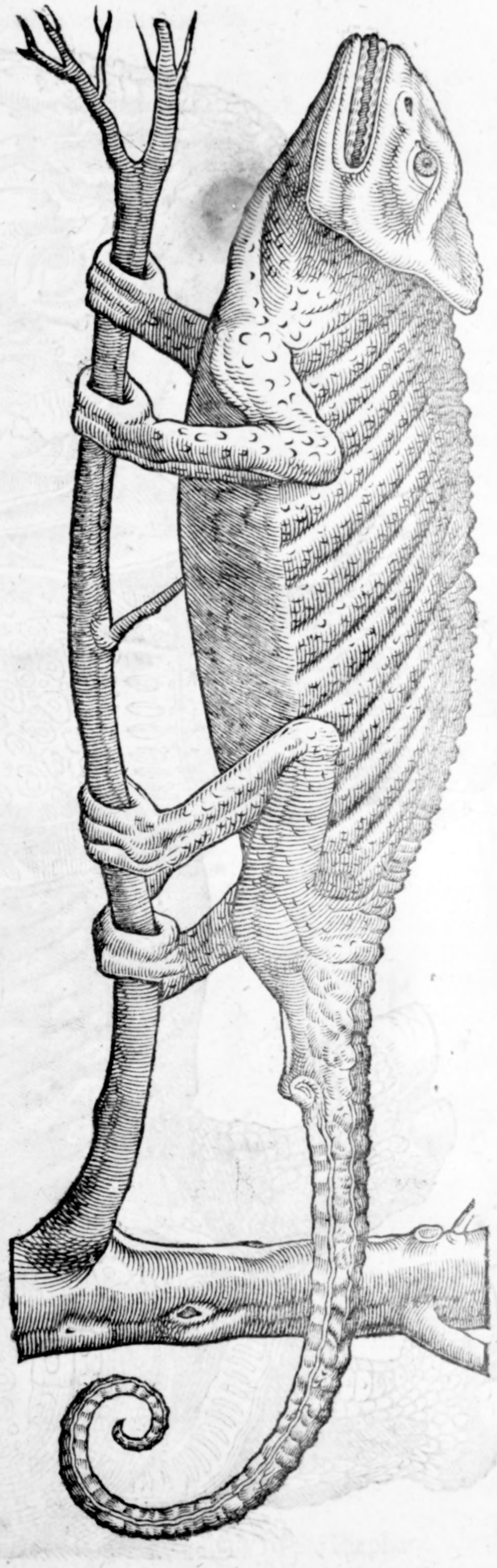
Plin. lib. 8. cap. 33.

Ariſt. lib. 2. hiſt. anim. cap. 11.

The ſtrange nature of the colour of the Chameleon.

Africa produceth the *Chameleon*, yet is it more frequent in *India*: he is in ſhape and greatneſſe like a Lizard, but that his legs are ſtraight, and higher, his ſides are joyned to the belly as in fiſh, & his backe ſtands up after the ſame manner, his noſe ſtands out not much unlike a ſwines, his taile is long, and endeth ſharpe, and hee foulds it up in a round, like a ſerpent, his nailes are crooked, his pace ſlow like as the Tortoiſe, his body rough, hee never ſhuts his eyes, neither doth hee looke about by the moving of the apple, but by the turning of the whole eye. The nature of his colour is very wonderfull, for he changeth it now and then in his eyes and taile, and whole body beſide; and hee alwaies aſſimulates that which he is next to, unleſſe it be red or white. His ſkin is very thinne, and his body cleare; therefore the one of theſe two, either the colour of the neighbouring things in ſo great ſubtlety of his cleare ſkinne, eaſily ſhines as in a glaſſe; or elſe various humors diverſly ſtirred up in him, according to the variety of his affections, repreſent divers colours in his ſkinne, as a Turky-cocke doth in thoſe fleſhy excreſcences under his throat, and upon his head: hee is pale when he is dead. *Mathiolus* writes that the right eye taken from a living *Chameleon* takes away the white ſpots which are upon the horny coat of the eye; his body being beaten, and mixed with Goats milke, and rubbed upon any part, fetcheth off haires; his gall diſcuſſeth the Cataracts of the eye.

The figure of a Chameleon.



Chap.

CHAP. XXIII.

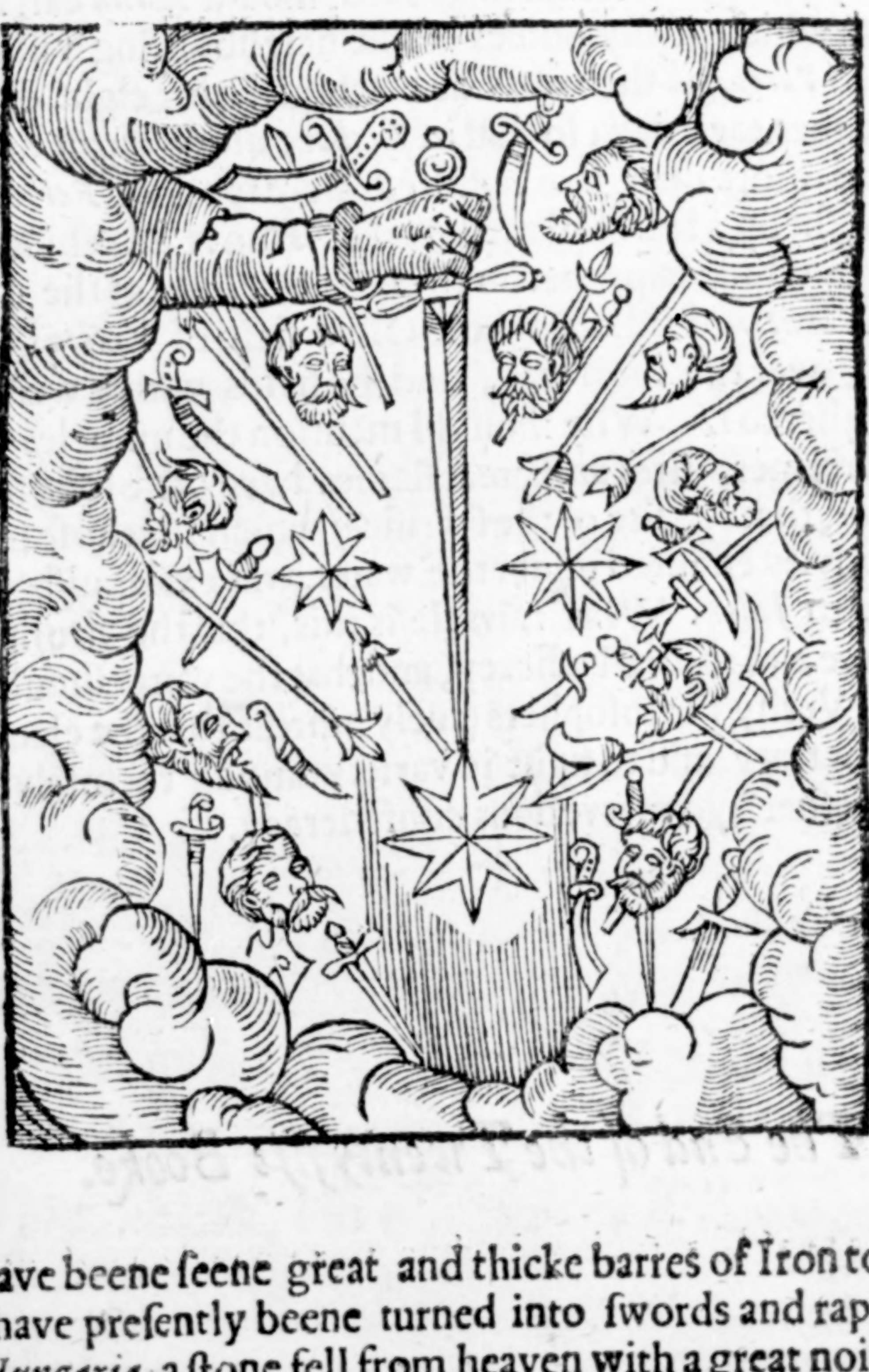
Of cœleſtiall Monſters.

PEradventure it hath not bin ſtrange that monſters have beene generated upon the earth and in the Sea: but for monſters to appeare in heaven, and in the upper region of the aire, exceeds all admiration. Yet have wee often read it written by the antients, that the face of heaven hath beene deformed, by bearded, tailed, and haired Comets; by meteors repreſenting burning Torches, and lamps, pillars, darts, ſhields, troups of clouds, hoſtilely aſſailing each other; Dragons, two Moones, Sunnes, and the like monſters and prodigies.

A Comet with bloody haire.

Antiquity hath not ſeene any thing more prodigious than that Commet which appeared with bloody haire in *Uveſtine*, upon the ninth day of *October*, 1528. for it was ſo horrible and fearefull a ſpectacle, that divers died with feare, and many fell into grievous diſeaſes; going from the Eaſt to the South, it endured no longer than one hower and a quarter: in the toppe thereof was ſeene a bending arme holding a great ſword in a threatning hand; at the end thereof appeared three ſtarres, but that over which the point of the ſword directly hanged was more bright and cleare than the reſt: on each ſide of this Comet were ſeene many ſpeares, ſwords, and other kinds of weapons died with blood, which were intermixt with mens heads, having long and terrible haire and beards, as you may ſee in the following figure.

The figure of a fearefull Comet.



Alſo there have beene ſeene great and thicke barres of Iron to have fallen from heaven, which have preſently beene turned into ſwords and rapiers. At *Sugolia* in the borders of *Hungaria*, a ſtone fell from heaven with a great noiſe, the ſeventh day of *September*, *anno Dom.* 1514. it weighed two hundred and fifty pound: the Citizens hanged it up with a great iron chaine put through it, in the midſt of the Church

Lib. 2. *cap.* 57.

Preſages of the taking of *Conſtantinople.*

Monſtrous rains

of their City, and uſed to ſhew it, as a miracle, to travellers of better note that paſt that way. *Pliny* reports that the claſhing of armour, and the ſound of a trumpet were heard from heaven often, before and after the Cimbrian warre. The ſame author alſo writes that in the the third Conſul-ſhip of *Marius*, the *Amarines* and *Tudortines* ſaw the heavenly armies comming from Eaſt and Weſt; and ſo joyning, thoſe being vanquiſhed which came from the Eaſt. Which ſame thing was ſeene in *Luſalia*, at a towne called *Jubea*, two houres after mid-night, *anno Dom.* 1535. But in *anno Dom.* 1550. upon the nineteenth day of *July*, in *Saxony*, not farre from *Wittenberg*, there appeared in the aire a great ſtagge, incompaſſed with two armed hoſts, making a great noiſe in their conflict, and at the ſame inſtant it rained blood in great abundance, the ſun ſeemed to be cloven into two pieces, and the one of them to fall upon the earth. A little before the taking of *Conſtantinople* from the Chriſtians, there appeared a great army in the aire appointed to fight, attended on with a great company of dogs and other wild beaſts. *Julius Obſequius* reports that in *anno Dom.* 458. it rained fleſh in *Italy*, in greater and leſſer pieces, part of which were devoured by the birds before they fell upon the earth: that which fell upon the earth kept long unputrefyed, and unchanged in colour and ſmell. *Anno Dom.* 989. *Otho* the third being Emperour, it rained corne in *Italy*. *Anno Dom.* 180. it rained milke and oyle in great abundance, and fruit-bearing trees brought forth corne. *Lycoſthenes* tells that in the time of *Charles* the fift, whileſt *Maidenberg* was beſieged, three ſunnes firſt appeared about ſeven a clocke in the morning, and then were ſeene for a whole day, whereof the middlemoſt was the brighteſt, the two others were reddiſh and of a bloody colour; but in the night time there appeared three moones. The ſame appeared in *Bavaria, anno Dom.* 1554.

Earthquakes.

Lib. 2, *cap.* 73.

But if ſo prodigious and ſtrange things happen in the heavens beſides the common order of nature, ſhall wee thinke it incredible that the like may happen in the earth? *Anno Dom.* 542. the whole earth quaked, mount *Ætna* caſt forth flames and ſparkes of fire, with which many houſes of the neighbouring villages were burnt. *Anno Dom.* 1531. in *Portugall* there was an earthquake for eight dayes, and it quaked ſeven or eight times each day; ſo that in *Liſbone* alone it caſt downe a thouſand and fifty houſes, and more than ſixe hundred were ſpoiled. *Ferrara* lately was almoſt wholly demoliſht by a fearefull earthquake. Above all which ever have been heard is that prodigie which happened in the time of *Pliny*, at the death of *Nero* the Emperour in the *Marucine* field, the whole Olive-field of *Vectius Marcellus* a Romane Knight going over the high way, and the fields which were againſt it comming into the place thereof. Why ſhould I mention the miracles of waters, from whoſe depth and ſtreames, fires and great flames have oft broke forth? They tell out of St. *Auguſtine*, that the fire of the ſacrifice, which for thoſe ſeventy yeeres of the Babylonian captivity endured under the water, was extinguiſhed, *Antiochus* ſelling the prieſt-hood to *Jaſon*. What miracle is this, that the fire ſhould live in the water, above its force and naturall efficacy, and that the water ſhould forget the extinguiſhing faculty! Verily Philoſophers truely affirme that the elements, which are underſtood to bee contrary, and to fight in variety among themſelves, are mutually joyned and tyed together by a marvellous confederacy.

The End of the Twenty fift Booke.

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OF THE FACULTIES OF SIMPLE MEDICINES, *AS ALSO* OF THEIR COMPOSITION and Uſe.

THE TWENTY SIXTH BOOK.

THE PREFACE.

AMongſt the cauſes which we terme healthfull, and other remedies which pertain to the health of man, and the expelling of Diſeaſes, Medicines eaſily challenge the prime place; which (as it is delivered by Solomon) *God hath produced out of the earth, and they are not to be abhorred by a wiſe man; for there is nothing in the world, which ſooner, and as by a miracle, aſſwageth the horride torments of diſeaſes. Therefore* Herophilus *called them fittingly adminiſtred, The hands of the Gods. And hence it was that ſuch Phyſitians as excelled in the knowledge of Medicines, have amongſt the Antients acquired an opinion of Divinity. It cannot by words bee expreſſed what power they have in healing. Wherefore the knowledge of them is very neceſſary not only for the prevention, but alſo for the driving away of Diſeaſes,*

The excellency of Medicines.

CHAP.

Chap. I.

What a Medicine is, and how it differeth from nouriſhment.

WEE define a medicine to bee, That which hath power to change the body according to one or more qualities; and that ſuch as cannot bee changed into our nature: contrary whereto we terme that nouriſhment which may be converted into the ſubſtance of our bodies. But we define them by the word power, becauſe they have not an abſolute nature, but as by relation and depending upon the condition of the bodies by whom they are taken. For that which is medicine to one, is meat to another, and that which is meat to this, is medicine to that. Thus for example, Hellebore is nouriſhment to the Quaile, but a medicine to man: Hemlocke is nouriſhment to a Sterling, but poiſon to a Gooſe: the *Ferula* is food to an Aſſe, but poiſon to other cattell. Now this diverſity is to be attributed to the different natures of creatures.

It is recorded in hiſtory, that the ſame by long uſe may happen in men. They report that a maide was preſented to *Alexander* the great, who, nouriſhed with *Napellus*, and other poiſons, had by long uſe made them familiar to her, ſo that the very breath ſhe breathed was deadly to the by-ſtanders. Therefore it ought to ſeeme no marvaile, if it at any time happen, that medicines turne into the nature and nouriſhment of our bodies: for we commonly may ſee birds and ſwine feed upon ſerpents and toads without any harme: and laſtly,

——Serpenti Ciconia pullos
Nutrit, & per devia rura lacerta:
Illi eadem ſumptis quærunt animalia pennis.

The Storke with Serpents and with Lizards caught,
In wayleſſe places nouriſheth her brood:
And they the ſame purſue, when as they're taught
To uſe their wing, to get their wiſh't for food.

Chap. II.

The differences of Medicines in their matter and ſubſtance.

The earth the mother of riches and medicines.

EVen as the concealed glory of worldly riches lyeth hid in the bowels of the earth, and depths of the ſea and waters, as gold, ſilver, and all ſorts of metals, gemmes and pretious ſtones, furniſht with admirable vertues; ſo we may behold the ſuperficies of this earth clothed with almoſt an infinite variety of trees, ſhrubs, and hearbs: where wee may contemplate and wonder at the innumerable diverſities of roots, leaves, flowers, fruits, gummes, their ſmells, pleaſant taſts and colours, but much more at their vertues. This ſame mother Earth, as with her breaſts, nouriſheth marvellous diſtinct kindes of living creatures, various in their ſpringing, encreaſe and ſtrength. Wherein the immenſe goodneſſe of God, the great Architect and framer of all things, doth moſt clearely appeare towards man, as who hath ſubjected to our government, as a patrimony, ſo ample and plentifull proviſion of nature for our delight in nouriſhment, and neceſſity of healing. Therefore the antient Phiſitians have rightly delivered, that all ſorts of medicines may bee abundantly had from living creatures, plants, the earth, water and aire.

what medicines taken from living creatures.

Medicines are taken from living creatures either whole and entire, or elſe the parts and excrements of them. Wee oft times uſe in Phiſicke whole creatures, as foxes, whelps, hedge-hogs, frogs, ſnailes, wormes, crabbes, and other living creatures. Wee alſo make uſe of ſome parts of them, as the liver of a wolfe or goat, the lungs of the foxe, the bone of the ſtagges heart, *Cranium humanum*, fat, blood, fleſh, marrow, the cods of the *Caſtor* or Beaver, which is therefore termed *Caſtoreum*, and ſuch other particles that are uſefull in Phyſicke. We know alſo that there are ſome medicines taken from excrements, as hornes, nailes, haires, feathers, skin; as alſo from urine, dung, ſpittle, hony, egges, waxe, milke, wooll, ſweat, and others of this kinde, under which wee may comprehend muske, civet, pearle, *œſipus*, and ſundry others of this nature.

What from plants.

Wee take medicines from plants, both whole, and alſo from their parts, whether trees, ſhrubs, or herbes. For we oft times uſe ſuccory, marſh-mallowes, mallowes, plantaine, and the like, whole: but otherwhiles onely the roots of plants, their pith, wood, barke, ſhoots, ſtalkes, leaves, flowers, ſeeds, fruits, juices, gummes, roſines, moſſes, and the like.

What from the earth.

Things taken from the earth for the uſe and matter of medicine, are either earths, ſtones, or mineralls. The ſorts of earth are Bole armenicke, *Terra ſigillata*, fullers earth, chalke, potters clay, and ſuch like. Stones are the pumice, Marchiſite of gold, ſilver, braſſe, marble, the load-ſtone, plaiſter, chalke, *ſulphur vivum, lapis ſpecularu*, and others. Metals and mineralls are gold, ſilver, tinne, lead, braſſe, iron, ſteele, antimony, ceruſſe, brimſtone, cinnaber, litharge of gold and ſilver, tutty, true *Pompholix*, verdigreece, alume, romane vitrioll, coproſe white and greene, ſalts of ſundry kinds, both the Arſenickes, and ſuch like.

What from the water.

The following medicines are from freſh water, raine water, ſpring water, river water, and all things thence ariſing, as water lentile, common flagges, water lillies, water mints, and all the creatures that live therein. From the ſalt water are taken ſalt, *Alcyonium*, all ſorts of corall, ſhels of fiſh, as alſo cuttle bones, ſponges, and all creatures of the ſea. From waters mixt of ſalt and freſh, the herbe *Androſace* (which growes in plenty in the marſhes at *Fontignan* and *Cape de Sete*) *Aſphaltum*, which is found in the dead ſea.

What from the aire.

From the aire proceeds *Manna*, therefore called *melaërium* (*i.e.*) hony of the aire, and alſo all other kindes of dew that are uſefull in Phyſicke by reaſon of the vertues they receive from the ſunne which raiſeth them up, from the aire, whereas they make ſome ſtay, as alſo from the plants, whereupon they fall and reſide.

CHAP. III.

The differences of ſimples in their qualities and effects.

ALL the mentioned ſorts of ſimples are endued with one or more of the foure faculties, whereof I now purpoſe to treat.

The firſt faculty common to all the reſt, and as it were their foundation, flowes from the foure firſt qualities of the prime bodies or elements, that is, heat, coldneſſe, dryneſſe, and moiſture, and this either ſimple or compound, as one or two of theſe prime qualities exceed in the temper of the medicine, as it may appeare by the following tables.

The ſimple quality is either to
- Heat,
- Coole,
- Humect,
- Dry.

The compound, ariſing from two joyned qualities, either
- Heats and dries,
- Heats and moiſtens,
- Cooles and dries,
- Cooles & moiſtens.

Heat, which is
- moderate,
  - Heats,
  - Attenuates,
  - Rarifyes,
  - Opens the paſſages,
  - Digeſts,
  - Suppurates.
- immoderate,
  - Inflames and burnes,
  - Bites, whence followes
    - Violent attraction,
    - Rubrification,
    - Conſumption,
    - Colliquation,
    - An eſchar,
    - Mortification.

Cold, which is
- moderate,
  - Cooleth,
  - Condenſeth,
  - Obſtructeth.
- immoderate,
  - Congeales,
  - Stupefyes,
  - Mortifyes.

Moiſture, which is
- moderate,
  - Humects,
  - Lubricates,
  - Levigates and mitigates,
  - Glues.
- immoderate,
  - Obſtructs,
  - Lifts up into a flatulent tumour, eſpecially if it be a vaporous humidity.

Dryneſſe, which is
- moderate,
  - Dryes,
  - Rarifyes,
  - Attenuates.
- immoderate,
  - Binds,
  - Contracts or ſhrinks,
  - Cauſeth chops and ſcailes.

5. *ſimp.* & 1. *de aliment.*

The effect of theſe qualities is diſtinguiſhed, and as *Galen* obſerves, digeſted into theſe orders, which wee terme Degrees; ſo that by a certaine proportion and meaſure, they may ſerve to oppugne diſeaſes, as the ſame *Galen* affirmes. For to a diſeaſe (for example) hot in the ſecond degree, no other medicine muſt bee uſed than that which is cold in the like degree: Wherefore all ſimple medicines are,

Hot, Cold, Moiſt, Dry, in the Beginning, Middle, Extreme, of the firſt, ſecond, third, fourth, degree.

The Heat, Coldneſſe, Moiſture, Dryneſſe of the firſt, ſecond, third, fourth degree, is Obſcure, Manifeſt, Vehement, Exceſſive.

Examples of the degrees of heat.

An example of heat diſtinguiſhed thus by degrees, may bee thus, Warme water is temperate; that which is a little hotter, is in the firſt degree of heat; if manifeſtly hot, it is in the ſecond degree; but if it heat more vehemently, it may be thought to come to the third; but if it ſcald, then we know that it hath arrived to the fourth degree of heate. Such alſo is the diſtinction of coldneſſe, moiſture, and drineſſe, by their degrees. Wherefore it will be worth our labour, to give you examples of certain medicines, diſtinguiſhed in their order and degree, by which you may the more eaſily give conjecture of the reſt.

Simple Medicines hot in the

First degree.

Abſinthium.
Althæa.
Amygdala dulcia.
Beta.
Braſſica.
Chamæmelum.
Ladanum.
Semen Lini.
Saccharum.
Ervum, ſive Orobus.
Vinum novum: For old is judged hot in the ſecond or third degree, as it is more or leſſe yeares old.

Second degree.

Ammoniacum. *Apium.*
Arthemiſia. *Chamæpytis.*
Anethum. *Crocus.*
Fœnugræcum. *Ficus.*
Maſtiche. *Thus.*
Salvia *Myrrha.*
Marrubium. *Mel.*
Meliſſa. *Nux moſchata.*
Pix utraque tum arida corporibus particuliſque ſolidioribus aptior, tum liquida delicatioribus.
Scilla. *Sal.*
Sarcocolla. *Opopanax.*
Bryonia. *Ammi.*

Simples hot in the

Third degree.

Abrotanum.
Agnus caſtus.
Aniſum. *Aſarum.*
Ariſtolochia.
Chamædrys.
Sabina.
Calamintha.
Cinamomum. *Iris.*
Juniperus.
Hyſſopus.
Origanum.
Sagapenum.
Chelidonium majus.
Ruta ſaliva.

Fourth degree.

Allium.
Cæpa.
Euphorbium.
Naſturtium.
Pyrethrum.
Sinapi.
Tithymalli.
Anacardi.
Chelidonium minus, Galeno. Yet ours, by reaſon of the gentleneſs of the ayre, & moiſture of our ſoile, is not ſo acride.
Ruta ſylveſtris. This, as all wilde and not cultivated things, becomes more ſtrong and acride than the Garden Rue.

Simples cold in the

First degree.

Atriplex.
Hordeum.
Cydonia mala.
Malva.
Pyra.
Pruna.
Roſa.
Viola.

Second degree.

Acacia. *Cucurbita.*
Cucumis.
Mala granata acida, dulcia enim temperata ſunt potius.
Plantago.
Polyganum.
Solanum hortenſe, nam id quod ſomniferum dicitur, vi refrigerandi ad papaver accedit.

Third degree.

Hyoſcyamus.
Solanum ſomniferum.

Fourth degree.

Cicuta.
Papaveris genera omnia, excepto Cornicula-

to

Third degree.

Portulaca.
Sempervivum.
Mandragora.

Fourth degree.

to, huic enim incidendi & abſtergendi vim attribuit Gal. Certè nitroſum & ſalſum guſtu percipitur, quo fit ut calidæ & ſiccæ ſit naturæ.

Opium.

Simples moiſt in the

First degree.

Bugloſſum.
Viola.
Malva.
Rapum.
Spinacia.

Second degree.

Ammoniacum.
Lactuca.
Cucurbita.
Cucumis.
Melones.
Portulaca.

Simples dry in the

Firſt degree.

Thus.
Chamæmelum.
Braſſica.
Sarcocolla.
Crocus.
Faba.
Fænugræcum.
Hordeum integrum.

Second degree.

Artemiſia.
Orobus.
Balauſtia.
Lens.
Maſtiche.
Mel.
Anethum.
Myrrha.
Pix arida.
Plantago.
Nux moſchata.
Sal.

Third degree.

Abrotonum uſtum.
Abſinthium.
Acetum.
Milium.
Sanguis draconis.
Galla.
Myrtus.
Aloe.
Cuminum.
Sabina.

Fourth degree.

Piper.
Allium.
Naſturtium.
Sinapi.
Euphorbium.

The effects of the first qualities by accident.

Thoſe we have mentioned have of themſelves and their own nature all ſuch qualities, yet doe they produce farre other effects by accident, and beſides their owne nature in our bodies, by reaſon of which they are termed accidentall cauſes. This ſhall be made manifeſt by the following examples.

Externall heat by accident refrigerates the body within, becauſe it opens the paſſages and pores, and cals forth the internall heate, together with the ſpirits and humours by ſweats: whence it followes, that the digeſtion is worſe, and the appetite is diminiſhed. The ſame encompaſſing heate alſo humects by accident, whileſt it diffuſes the humours concrete with cold: for thus Venery is thought to humect.

The like may be ſaid of Cold, for that it heates not by its proper and native, but by an adventitious force: whereof you may make tryall in Winter, when as the ambient cold, by ſhutting the pores of the body, hinders the breathing forth and diſſipation of the native heat. Whence it is inwardly doubled, and the concoction better performed, and the appetite ſtrengthened. This ſame cold alſo dries by accident, when as it by accident repercuſſes the humour that was ready to flow down into any part, and whilſt it concretes that which is gathered in the part: for thus by the immoderate uſe of repercuſſers, an œdematous tumour, proceeding from groſs and viſcide phlegme, degenerates into a *ſcirrhus*.

Drineſſe and moiſture, becauſe they are more paſſive qualities, ſhew their effects by not ſo manifeſt operations, as heate and cold doe; but in compariſon of them they are rather to be judged as matter or a ſubject.

Chap. IV.

Of the ſecond faculties of Medicines.

WEe terme thoſe the ſecond faculties of Medicines, which have dependance upon the firſt, which are formerly mentioned, as it is the part

Of Heate to	Rarefie, Attract, Open, Attenuate, Levigate, Cleanſe.	Of Cold to	Condenſe, Repercuſſe, Shut up, Incraſſate, Exaſperate, Conſtipate.
Of Moiſture to	Soften, Relaxe.	Of Drineſſe to	Harden, Stiffen.

Hence we terme that an attractive medicine, which hath an attractive faculty, as on the contrary, that a repercuſſive, that repels; a detergent, that which cleanſes viſcous matter. We call that an Emplaſticke medicine, which not only ſhuts up the pores of the body, but reduces the liquid bodies therein contained to a certaine equality of ſubſtance. Thus alſo emollients, relaxers, and the reſt, have their denominations from their effects, as we ſhall declare hereafter.

Chap. V.

Of the third faculties of Medicines.

THe third faculty of medicines depends for the moſt part upon the firſt and ſecond faculties, ſometimes conjoyned, otherwhiles ſeparate. Alſo ſometimes it followes neither of theſe faculties, but a certaine property and inexplicable quality, which is only knowne by experience. Now the operations of this third faculty are to agglutinate, to fill with fleſh, to cicatrize, to aſſwage paine, to move or ſtay the urine, milke, ſeed, the courſes, ſweats, vomits, and performe ſuch like operations in or about the body.

Thus the generation of fleſh is produced by the concourſe of two faculties, that is, of drying and cleanſing. But drineſſe and aſtriction produce a glutinating and cicatrizing faculty. A hot and attenuating faculty cauſeth ſweats, moves urine, the courſes, and the like in the body; but contrary faculties retarde and ſtop the ſame.

To mitigate paine, proceeds only from the firſt faculty, to wit, from heate, or a moderately heating faculty; to procure reſt, from cold onely, or coldneſſe joyned with ſome moiſture. But to procure vomit, proceeds neither from the firſt nor ſecond faculty, but from a certaine occult and eſſentiall property, which is naturally implanted in Agaricke, and other nauſeous and vomitory medicines.

Chap. VI.

Of the fourth faculty of Medicines.

THe fourth faculty of medicines is not of the ſame condition with thoſe that are formerly mentioned; for it depends not upon them, or any other manifeſt or elementary quality, but on an occult property of the whole ſubſtance, by meanes whereof, it workes rather upon this than that part, upon this rather than that humour. Wherefore Phyſitians cannot by any reaſon finde out this faculty, but only by experience, as we have ſaid a little before of me-

The fourth faculty of medicines depends only upon an occult propertie.

dicines procuring vomit. Hence it is, that names are given to thoſe medicines from thoſe parts that they chiefly reſpect: For they are termed Cephalicks, which reſpect the head, as Betony, Marjerome, Sage, Roſemary, *Stæchas*: Pneumonicks, which reſpect the Lungs, as Liquorice, ſweet Almonds, Orris, Elecampane. Cordials, that ſtrengthen the heart, as Saffron, Cinamon, Citrons; but chiefly their rindes, Bugloſſe, Corall, Ivory. Stomaticall, which reſpect the ſtomacke, and the orifice thereof, as Nutmegs, Mint, Aniſe, Maſticke, Pepper, Ginger. Hepaticks, which reſpect the Liver, as Wormwood, Agrimony, Spikenard, Succory, Sanders. Spleniticks, which have relation to the ſpleene, as Time, *Epithymum*, Broome flowers, Cetrach, Capers, the barke of their rootes, the barke of Tamariske. Diureticks, ſuch as reſpect the kidneyes and urenary paſſages, as the rootes of Smallage, Aſperagus, Fennell, Butchers brome, the foure greater cold ſeeds, Turpentine, Plantaine, Saxifrage. Arthniticks, or ſuch as ſtrengthen the joynts, as Cowſlips, *Chamæpytis*, Elecampane, Calaminte, Hermodactiles, and the like.

To this ranke may be referred purging medicines, which, furniſhed with a ſpecificke property, ſhew their efficacy on one humour more than another humour, and that impact more in one part than in another. For thus Agricke chiefly drawes phlegme from the head and joynts, Rubarbe drawes choller chiefly from the Liver, and hurts the kidneyes. But let us here forbeare the conſideration of ſuch things, as not appertaining to Surgery. But ſome medicines of this kinde are furniſhed with one ſimple faculty, otherſome with more, and thoſe contrary, whereof your taſte may give you ſufficient notice: for Rubarbe at the firſt touch of the tongue is found acride and hot; but when you come to chaw and throughly to taſte it, you ſhall find it to partake of an earthy aſtriction. Therefore becauſe taſtes give notice of the faculties of medicines, therefore I have thought good to treat of them briefly.

Chap. VII.

Of Taſtes.

Lib.1.ſimpl.

Differences of taſtes.

TAſte, as *Galen* delivers according to *Ariſtotle* and *Theophraſtus*, is a certaine concoction of moiſture in drineſſe, cauſed by meanes of heate, which we know or diſcerne by the tongue well tempered, and fittingly furniſhed with ſpittle and his nerves. There are nine differences of taſtes; for there are three judged hot, to wit, the acride, bitter, and ſalt: three cold, the acide, auſtere, and acerbe: three temperate, the ſweet, the oily or fat, and the inſipide. Now they are thought ſo many, according to the different degrees of concoction; for it appeares greater in hot taſtes, and as it were a certaine aſſation, but leſſe in cold, but indifferent, and as it were an elixation in things temperate: therefore Nature obſerves this order in the concoction of ſapide bodies, that at the firſt the acerbe taſte ſhould take place, then the auſtere, and laſtly, the acide; from theſe (as it were) rudiments of concoction, ariſes an inſipide, then an oily, then a ſweet perfectly concocted and temperate. This concoction exceeding the bounds of mediocrity, there ariſes a ſalt taſte, then a bitter, and then an acride with the higheſt exceſſe, of almoſt a fiery heate. Yet I would be thus underſtood, that all things that are by nature ſapide, do not alwayes aſcend to the height of ſweetneſſe by the degrees of acerbity, auſterity, and acidity, as though it were of abſolute neceſſity, that all things that are ſweete, they ſhould firſt bee acerbe, auſtere, and acide. For there are many things found, eſpecially in plants and their fruits, which when they ſhall arrive to their perfection and maturity, are acide, bitter, or ſalt, but being yet unripe, and not come to full perfection, they have a certaine ſweetneſſe, which afterwards, by a further digeſtion, or perfection and concoction, acquire a bitter, auſtere, or acide taſte. For thus bitterneſſe in Wormwood and Aloes, acrimony in Pepper or Pellitory, is a perfection of nature, a full ripeneſſe and perfect concoction, and not an exceſſe of heate in that *ſpecies*. Alſo acerbity and auſterity is a perfection of nature, and not a rudiment in Services and Cornelians; acidity or tartneſſe is alſo ſo in verjuice. But in very many things it ſo fals out, that the ſweet or fatty taſte become ſo, and acquire their perfection by concoction, as in Grapes, Figges, Peares, Apples, and almoſt all other ſuch fruits, as wee uſually feed upon. Therefore I will now treat of each of them in order, firſt beginning with the cold taſtes.

The acerbe taſte.

The acerbe taſte is cold and terreſtriall, and of a ſubſtance abſolutely groſſe, being leſſe humide than the auſtere, but much leſſe than the acide. It notably cooles and dryes, it condenſats, binds, repels, eſpecially from the ſuperficies, and it alſo exaſperates; this taſte reſides, and may be found in Pomegranate pils, Galls, *Sumach*, and Cypreſſe nuts.

The auſtere.

The auſtere is nigheſt in temper and effects to the acerbe, but ſomewhat moiſture; for the acerbe abſolutely conſiſts in a terreſtriall & cold ſubſtance. Wherefore this, increaſed by a degree of concoction, acquires more ſtore eyther of heate alone, or elſe of moiſture alone, or elſe of both together: moiſture, I ſay, and that is either ayery, or elſe watry. Therefore if theſe fruits, which before their maturity are acerbe, have an acceſſion of heate, then doe they become ſweet, as you perceive by Cheſnuts; but if there be an acceſſion of moiſture only, and that more groſſe, of acerbe they become auſtere: for both the taſtes are in the like degree of cold, but the auſtere is the moiſture. But if to the ſame frigidity remaining in fruits, a certain ſubtle humidity accrew, then is there cauſed an acide taſte. But if they have an acceſſion of a watriſh moiſture and heate, they will acquire a ſweet taſte, or elſe oily, if the humidity accrewing with the heate be ayery.

I have judged it requiſite to admoniſh you hereof, that you might know by what meanes ſapide bodies mitigated become ſweet of acerbe, as it were by theſe interpoſed degrees of auſterity, acidity, and oylineſſe, as they acquire a various acceſſion of heate and moiſture ſeparately, or conjunctly.

Now by all that wee have delivered, you may gather, that all acerbe and auſtere things are cold and dry; and as they are cold, they repell and hinder defluxions: as they are dry and terreſtriall, they condenſate, incraſſate, conſtipate, and ſtraiten the paſſages; yea, and they alſo cicatrize: but acerbe things performe this farre more powerfully, as thoſe which are abſolutely terrene, cold, and dry, not partaking of moiſture, or water. Now auſtere things conſiſt (as it were) in a middle matter, that is, in a more dilute terrene body, as it is apparent in Services, unripe Grapes, Cornelians, Medlars, Crabs, wilde Peares, and all ſorts of unripe fruits, whence it is termed a crude taſte.

The acide taſte.

The acide taſte is of a cold and watriſh nature, but moſt ſubtle, by benefit whereof it penetrates, and divides almoſt as powerfully as the acride. It incides, or divides, attenuates, bites, cleanſes, opens obſtructions, repels and dryes. For by the meanes of the deep piercing cold, it repels all defluxions; and by the drying faculty, which is ſtrong even in its watry conſiſtence, it ſtayes and ſtops all bleedings, the hæmorrhoides and dyſenteries. The force thereof is chiefly manifeſt in Vinegar, as alſo in the juice of Citrons, Sorrell, Cherries, Berberries, and the like. And this is the nature of cold taſtes, now it is time we ſpeake of ſuch as are temperate.

The inſipide.

The inſipide is unproperly termed a taſte, as that which is rather a privation of taſtes, it is in ſome ſort cold, and of a very watriſh and groſſe nature, it inſpiſſates, conſtipates, and ſtupifies. This kinde of taſte is chiefly manifeſt in water, and next in Gourds, Citruls, and many ſuch like things.

The oily.

The oily taſte is hot, humide, and ayery; therefore it humects, relaxates, mollifies, lubricates. Of this kinde are oyle, butter, fat which is not raucide by age, nor acride by nature, as that of Lyons and Foxes.

The ſweet.

The ſweet taſte is made by a moderate and well concocting heate, conſiſting in a matter more tenuious and hot than the inſipide, but in ſomewhat more groſſe than the oily, from which in the firſt qualities it doth not differ; therefore it is of a hot, ayery, and temperate nature. Therefore every ſweet thing detergeth, levigates, concocts, ripens, relaxes, and aſſwageth paine. Examples of this taſte may be had in Sugar, Honey, Manna, ſweet Almonds, Milke, and other like. Now let us come to hot taſtes.

The ſalt.

The ſalt taſte is hot and aſtringent, leſſe earthy than the bitter, as that which reſides as it were in a middle matter. For it proceeds from an earthy drineſſe, which is formerly torrified & attenuated by the force of heate in a watry humidity. Wherefore that which is ſalt contracts the pores, cuts, cleanſes, digeſts, or rather dryes up the humours by the drineſſe thereof, without any manifeſt ſenſe of heate, whence it is, that it vindicates from putrefaction. Under this kinde are contained all ſorts of ſalt, as ſalt-Peter, *niter*, *ſal Ammoniacum*, *ſal gemmæ*, common ſalt, ſea water, and ſuch other like.

The bitter.

The bitter taſte is hot, earthy, and drying; for the matter thereof is groſſe and earthy, which the abounding heate hath torrified and dryed up. Wherefore bitter things taken inwardly, purge and carry away ſuperfluous humours: and outwardly applyed, they mundifie and deterge ulcers, they open the mouthes and paſſages of the veines oft-times by their abſtergent faculty; whence it is that they move the courſes and hæmorrhoides. The principall things indued with this taſte are Aloes, Gall, Wormwood, Gentian, the leſſer Centaury, Coloquintida, Fumitory, Soot, and ſuch like.

The acride.

The acride taſte is hot, of a ſubtle and fiery nature; for it is kindled of a hot, ſubtle, and dry matter, neither can it conſiſt in any other. Therfore that which is acride, heats, prickes or bites the mouth by the acrimony, it heates, and oft-times burnes, it penetrates, opens the paſſages, attenuates, attracts and drawes forth groſſe humours, evacuates and ſends forth urine, the courſes, and ſweat: beſides it oft-times is ſepticke, bliſtering, and eſcharotick; and laſtly, burning, and cauſticke. The ſepticke & putrefactive things are ſublimate, *Chamælea*, the juice of *Thapſia*. The veſicatories are Dittander, Cantharides, Crowfoot, Muſtard, Pellitory of Spaine, *Euphorbium*. But the cauſticke and eſcharoticke are Lime, Oake aſhes, and the like.

But wee know medicines not onely by the taſte, but alſo by our other ſenſes, as touch, ſight, hearing, ſmell. And as by the taſte, ſo alſo by theſe we judge of and try the goodneſſe of medicines, and diſtinguiſh the true legitimate from the adulterate. The touch judges what are hot and cold, moiſt and dry, rough and gentle, or ſmooth, hard and ſoft, brittle or friable, glutinous and viſcide, dry or ſlippery. We approve of the goodneſſe of medicines by their colour, brightneſſe, or duskineſſe, whereof the eye is judge; for wee commend that Senna which is ſomewhat greeniſh, but diſlike the whitiſh: as alſo we like well of ſuch Caſſia as is blacke both within and without, ſhining and full, and not dry and ſhrunke up. Yet the judgement of the firſt qualities, by the colour is deceitfull, or none at all; for ſuch things as are white, or of the colour of Snow, are not therefore cold: for ſundry of them are hot, as Lime. Neither are red things to be therefore judged hot; for Roſes coole. Alſo medicines are choſen by the ſmell; for ſuch as have a good, freſh, and naturall ſmell, are commonly hot, and in their perfect vigour. On the contrary, things that want ſmell are for the moſt part cold and evanide. By hearing we diſtinguiſh things full from ſuch as are empty: thus we chooſe Caſſia, which ſhaken, makes no noyſe with the grains or ſeeds ratling in it. Hitherto we have explained the firſt, ſecond, third, and fourth faculties of medicines in generall, & have ſhewed how they may be found out: now muſt we more particularly treat of their ſecond and third faculties, becauſe by reaſon of theſe they chiefly come into uſe in Surgery: Yet let mee firſt briefly ſhew by what meanes and arts they may be prepared.

CHAP. VIII.

Of the preparation of medicines.

To prepare medicines, is nothing elſe, than by art to make them more commodious for uſe and compoſition, whereby they are eyther made

- More gentle.
- More ſtrong.
- More pleaſant.
- More wholeſome.
- More fit for mixture.

All which are performed

- By bruiſing, as when medicines are brokẽ by ſtriking and rubbing or grinding in a mortar, & that either of
  - Braſſe, Iron, Lead, Glaſſe, Wood, Marble, & other like.
  - conſidering
    - The thing which is to be beaten.
    - The ſtrength or force wherewith it muſt be performed.
    - The time or ſpace.
    - The ſituation.
    - The things to be added.
    - The conſiſtence which the thing beaten muſt be of.
- By searſing, whereby we ſeparate the pure and finer from the more impure and groſs, which is done by ſives and ſearſes, made of
  - Wood, Parchment, Horſe haire. Silke, Lawne.
  - Wherein is to bee noted, that the ſame conſideration is to bee had in searſing, as in beating; therefore ſuch things as are to bee finely powdred, muſt bee ſearſed in a finer ſearſe: ſuch as are more groſſe, in a courſer.
- By diſſolving or mollifying.
  - Which is nothing elſe but a diſſolving of a ſimple or compound medicine, of a thick or hard conſiſtence, either into a mean conſiſtence, or a little more liquid or ſoft, which is performed
    - Either by heate onely; for by heate gums and hornes are mollified: or by liquor, as by vinegar, water, wine, juice of Lemmons, &c.
- By deſiccation or hardening, which
  - Is nothing elſe, but the conſuming of the ſuperfluous and hurtfull moiſture, and this is performed, either
    - By the Sun, or By Fire.
- By infuſion, which is nothing elſe but the tempering or macerating of a medicine a little beaten or cut, in ſome liquor appropriate and fit for our purpoſe, as in Milke, Vinegar, Water, Oyle, and the like, ſo long as the nature of the medicine requires. To infuſion
  - Nutrition may bee reduced, which is nothing elſe, but as it were a certaine accreſsion of the medicine, by being moiſtened, macerated, rubbed, or ground with ſome moiſture, eſpecially wth heate.
- By burning, that is, by conſuming the humidity which is in them. And that, either that they may be the better powdred, being otherwiſe too glutinous, or that they may lay aſide their groſs eſſence, and become of a ſubtler temper; or that they may put off, or partly loſe ſome fiery quality, as acrimony, *Gal. lib. 4. cap 9. ſimplicium*. Or that they may acquire a new colour. Now all things are burnt, eyther
  - Alone, as ſuch things as have a fatty moiſture, as haires, ſweaty wooll, hornes: Or elſe with ſome combuſtible matter, as ſulphur, alome, ſalt, barley, &c.
- By boyling or elixation, which is performed by a humide heate, as burning is by a dry, & that either that wee may increaſe the weake faculties of ſuch medicines as are boyled, by boyling them with ſuch as are ſtronger; or elſe to weaken ſuch as are too ſtrong, or elſe wholly to diſſipate ſuch as are contrary: Or that one faculty may ariſe of ſundry things of different faculties being boyled together, or for the longer keeping them, or bringing them to a certaine forme or conſiſtence: all which are done, eyther by the
  - Fire, or Sun.
- By waſhing or cleanſing, wherby the impurity of the medicine is waſted away or cleanſed, and ſuch things are eyther
  - Hard, as metals, ſtones, parts of living creatures, condenſed juices, & other like: Or ſoft, as Roſines, Gums, Fats, Oyles.
  - And theſe ought firſt
    - To be finely beaten, that the water may penetrate into all their ſubſtance. Or to be diſſolved, & caſt into a veſſell filled with water, and ſo ſtirred, & then ſuffered to ſubſide; ſo that the fat may ſwim aloft: and this muſt be done ſo long that the water retaine nothing thereof in colour, ſmell, or taſte.

CHAP. IX.

Of repelling, or repercuſſive medicines.

Aſtringents are underſtood by the name of repellers.

The differences of repercuſsives

REpelling or repercuſſive medicines are cold, and of groſſe and earthy parts; by which name alſo aſtringent medicines are underſtood, becauſe they hinder the falling downe of the humours upon the part. Repercuſſives are ſuch, either of their nature and of themſelves, or elſe by accident, being not ſuch of their own nature. Theſe which of themſelves are ſuch, are of two kinds; for ſome are watriſh & moiſt, without any aſtrictive faculty, which almoſt wholly proceeds from an earthy eſſence; wherefore that faculty of repelling which they poſſeſſe, they have it wholly from coldneſſe. Of this kinde are lettuce, purſlaine, ſow-thiſtle, duckes-meat, kidney wort, cowcumbers, melons, gourds, houſe-leeke, mandrake apples, night-ſhade, henbane, and the like, which coole powerfully, and unleſſe they be taken away before the part waxe blackiſh, they extinguiſh the naturall heat. Other ſome are of an earthy eſſence, and therefore aſtrictive; but yet ſome of theſe are hot, other ſome cold. Such things as are cold of temper, and of an earthy conſiſtence, are properly and truly termed repellers. Of theſe, ſome are ſimple, other ſome compound: the ſimples are plantaine, vine leaves, leaves of roſes, oakes, brambles, cypreſſe, berberies, *ſumach*, all unripe fruits, verjuice, vinegar, red wine, the juice of ſower pomegranats, *acacia*, the juice of barberries, and quinces, *hypociſtis*, pomegranate pills, oake barke, the flowers of wilde pomegranates, the meale of barly, beanes, panicke, oats, millet, *orobus* mixed with juices in forme of a pultis, bole armenick, *ſanguis draconis*, ceruſſe, litharge, *terra ſigillata*, fullers earth, chalke, marle, the load-ſtone, lead, coralls, all marchiſites, antimony, *ſpodium*, true *pomphilix*, all ſorts of earth, and other things of the like nature.

Why things of ſubtle parts are oft times mixed with repercuſſives.

Repellers by accident.

When, and to what parts repercuſsives muſt be applied.

Now compound things are *oleum roſaceum*, *omphacinum*, *mirtillorum*, *papaveris*, *cidoniorum*, *nenupharis*, *unguentum roſatum*, *album rhaſis*, *camphoratum*, *emplaſtrum diacalcitheos*, diſſolved in vinegar and oile of roſes, *deſiccativum rubrum*, *populeon*, *emplaſtrum nigrum ſeu tetrapharmacum* of *Galens* deſcription, *empl. contra rupturam*, *de ceruſa*, *pro matrice*. All ſuch cold repercuſſives are more effectuall if they be aſſociated with tenuity of ſubſtance, either of themſelves, or by mixture with ſome other things: for to this purpoſe we often mixe vinegar, camphire, and the like things of ſubtle parts, with repercuſſives of groſſe parts, that they may ſerve as vehicles to carry in the repercuſſives faculty. Repercuſſives of groſſe parts and hot, are wormwood, centory, gentian, agrimony, ſavin, coriander, mint, bay leaves, cardamomes, *calamus aromaticus*, aloes, ſpikenard, ſaffron, nutmeg, cinamon, amber, ſalt, alome, coporoſe, *ſulphur*, *oleum abſinthinum*, *maſtichinum*, *nardinum*, *coſtinum*, *ceratum*, *Gal. ſtomachicum*, *ſantalinum*, *emplaſtrum diacalcitheos*. But ſuch things as repell by accident, are bandages, compreſſes, linnen cloaths, and rowlers of all ſorts, caſes, cauteries, blood-letting, cupping, painefull frictions in the oppoſite parts, and other ſuch like things as are properly ſaid to make revulſion. The uſe of repercuſſives is to force backe the humour which flowes from any other place into the part, and thus they mitigate the heat of ſuch inflammation as that defluxion of humors hath cauſed, yea oft times to aſſwage and helpe paine, the feaver, abſceſſe, maligne ulcers, and mortification. Such repercuſſives muſt alwaies bee ſo oppoſed to the diſeaſe, that reſpect may bee had to the temper, complection, and particular nature of the part whereto they are applied; for all parts cannot equally beare the like force of repercuſſives, as nervous & other ſpermatick and cold parts. Furthermore, there are ſome parts whereto wee may by no meanes apply repercuſſives, as the groines, arme-pits, and thoſe glandules or kernells which are behind the eares and braine, leſt the humour ſhould retire backe into ſome of the principall parts: the like reaſon is alſo of bodies, for the bodies of women, children, eunuches, cannot endure ſo ſtrong repercuſſives and the like exceſſe of cold as manly and vigorous bodies may. Beſides, every diſeaſe requires not repercuſſives, for if the body bee repleat with ill humours, if it bee ple-

thorick

thoricke, the uſe of repercuſſives, unleſſe after generall purgation, cannot be ſafe; as neither if the humour which is in motion ſhall be venenate, groſſe, acrid, criticall, or ſhall cauſe great paine in the part, for then on the contrary wee muſt rather make uſe of attractives. But now if the diſeaſe be great, weake repercuſſives will availe nothing againſt it, as lettuce againſt a great inflammation; and thou ſhalt doe ill if thou ſet upon a ſmall defluxion with powerfull repellers; for by that meanes the skin is ſtraitened, and the paſſages thereof ſtopt, whereby the inflammation is encreaſed, or elſe brought to a *ſchirrhus*. Wherefore let the Chirurgian have a care that hee temper the force of his Repercuſſives according to the magnitude of the diſeaſe.

CHAP. X.

Of attractive medicines.

What an attractive medicine is.

AN attractive medicine is contrary to the repeller; the greeks call it *Helcticum*, it is of a hot and thin ſubſtance, whereby it draweth forth into the ſuperficies of the body that which lyeth hid in the center, although ſometimes it doth it by an occult quality; other whiles alſo by accident, as by the acrimony. Thoſe things which by a manifeſt quality doe attract, are either ſimple or compound.

Attractives by a manifeſt quality.

The ſimple are *Bryonia, allium, cæpa, porrum, araſtolechia, hermodactyli, ciclamen, lilium, ſigillum beatæ Mariæ, arum, aſarum, aſphodelus, gentiana, pyrethrum, ruta, ſabina, calamentum, omnes tithymalorum ſpecies, viſcum, abrotanum, anogallis, urtica, ranunculus, ſtruthium,* and ſuch like: *ammoniacum, bdellium, gabbanum, ſagapenum, euphorbium, aſphaltum, cinis e fæce vini vel aceti, calx viva, ſulphur, ſal ammoniacum, omnes ſalis ſpecies, auripigmentum, oleum vetus, adeps leonis, urſi, canis, anſeris, viperæ, ranarum, axungia porci vetuſtate acris, aut attriturotarum. Compoſita vero, ut oleum de ſpica, philoſophorum, de terebinthina, de croco, de ſcorpionibus, rutaceum, vulpinum, laurinum, anethinum, de vitriolo, unguentum Agrippæ, aragon, ſeu auxiliare, martiatum, enulatum, theriaca, mithridatium, empl. de meliloto, diachylon magnum & parvum, oxycroceum, divinum.*

By an occult.

Thoſe things which draw by a ſecret property in nature, as are the load-ſtone, quick-ſilver, pyony, amber, all antidotes and treacles that are remedies againſt the bitings of venemous beaſts, and all purging medicines.

By accident.

Theſe which draw by accident, performe it otherwiſe than of their owne nature, they have that quality out of putrefaction and corruption, as doves dung, goats dung, cow dung, mans dung, and all kinde of dungs: alſo leven, old cheeſe, and ſuch like.

Cupping glaſſes, leaches, ſyrenges, rougher and harder frictions, ſucking, paine, ſtraight ligations, cauteries doe alſo draw, but after a different manner from them ſpoken of before.

Their uſe.

Attractive medicaments muſt neither burne nor diſcuſſe, and being very ſtrong and ſharpe, they ſhould bee tempered and mixed with oyle of roſes, and other lenitives: but to weake ones ſhould be added oyle of bayes, *calx viva*, and ſuch like to ſtrengthen them. The uſe of attractives is to draw poyſon toward the skin, & to haſten forward criticall abſceſſes; and they make thoſe parts which were benumbed and conſumed, to have life, they reſtore the refrigerated parts by drawing thither the ſpirits; they draw forth the viſcous filth of maligne ulcers that lies hid in the nerves, and hollow paſſages of them; they alſo draw out ſcailes of bones, ſplinters of wood, nailes, thornes, arrowes, and that matter which is impact in hardened inflammations.

Chap. XI.

Of reſolving medicines.

What a reſolving medicine is.
The differences thereof.

THat is called a reſolving medicine, which by heat, and the tenuity of his ſubſtance openeth the pores, attenuates the humours, diſſipates and diſcuſſeth by evaporating the unprofitable matter. There are two ſorts of theſe kindes of medicines; the one is called *Aræoticum* or rarifying; the other is termed *Diaphoreticum* or digeſting.

The *Aræoticum* by a meane heat, and not dry, and endued with a tenuity of ſubſtance, openeth and relaxeth the skinne, and draweth forth the matter ſhut up under it, whereby it may eaſe paine, like as Anodines, becauſe it doth not much depart from a temperate heat.

But the *Diaphoreticum* being much hotter, whatſoever ſticketh in the part being there impact, it doth by thin vapour inſenſibly diſſipate: therefore the acrid and hot things are in this caſe to be made uſe of rather than attractives, becauſe that cold and groſſeneſſe is more difficultly to be digeſted, and the length and involution of the waies being to be conſidered. The Aræoticke, which we may call weake reſolvers, are either ſimple or compound.

The ſimples are theſe, *biſmalva tota, parietaria, adianthum, mercurialis, ebulus, valeriana, roſmarinus, ſalvia, thymus, chamæmelum, melilotum, anethum, farina hordei, tritici, ſeminis lini, fænugræci, nigella, furfur, adeps gallinæ, anſeris, anatis, cuniculi, vituli*; almoſt all metalls unleſſe ſuch as are acrid. The compounds are *oleum chamæmolinum, anethinum, liliaceum catellorum, lumbricorum, Keirinum, de vitellis ovorum, de tritico, amygdalarum dulcium, Uuguentum de althæa, empl. diachylum, ireatum.* Diaphoretickes or digeſtives, are alſo both ſimple and compound: the ſimple are *Ariſtolochia, enula campana, iris, cæpa, ſcylla, ſigillum Salomonis, ſigillum beatæ Mariæ, bryonia, panis porcinus, dracunculus, aſphodelus, origanum, mentha, pulegium, ſabina, ſerpillum, calamentha, hyſſopus, urtica, arthemiſia, lavendula, chamepytis, aniſum, fæniculum, cuminum, piper, nux moſchata, coriandrum, baccæ lauri & juniperi, farina fabarum, lupinorum, orobi, milii, frumenti, furfur, mica panis, acetum tepidum, oxycratum, vinum vetus aut aromaticum, mel, aqua vitæ, muria, adeps tauri, equi, leonis, canis, hirci, medulla cervi, cruris bovis & arietis, ammoniacum, galbanum, opopanax, ſagapenum, myrrha, bdellium, thus, terebinthina, pix nigra, ladanum, ſtyrax, calamita, bentoinum, ſtercus caprinum, columbinum, caninum, bubulum, & aliæ ſtercorum ſpecies.*

Compound diaphoretickes are *oleum amygdalarum amararum, Juniperinum, laurinum, de ſcorpionibus, irinum, coſtinum, nardinum, de terebinthina, de croco, canabinum, raphaninum, è cucumere agreſti, vulpinum, rutaceum, philoſophorum de lateribus, de euphorbio, de tartaro, de petroleo, de kerva, ſive ricininum, unguent. Agrippæ, aragon, martiatum, enulatum, empl. de Vigo,* without addition, and with addition, *oxycroceum, diacalcitheos*, diſſolved in a digeſting oyle to the forme of a cerat.

Aræotickes are profitably uſed in the increaſe and ſtate of ſuperficiall tumours.

The uſe of diaphoreticks.

But Diaphoretickes are not to bee uſed in the encreaſe of tumours, unleſſe ſome aſtringent bee added, leſt by their more ſtrong digeſtion, they ſhould draw and increaſe the defluxion: but when the tumours decline, they are then onely to be uſed in the parts chiefly where the skinne is denſe and hard, and when the humour is cold and groſſe, and lying hid deep in the body, ſo that the vertue of medicaments can hardly come thereto: but conſideration is to bee had of the parts to which reſolutives are to be applied; for you may not apply relaxers or diaphoretickes to the liver, ſpleen, ſtomacke, or bowels, unleſſe you adde ſome aſtringents, of which a great part muſt be aromatickes.

To the parts where ſenſe is more dull, may be applied the ſtronger diaphoreticks, but thoſe parts which are endued with a more exquiſite ſenſe, as the eye and the nerves, to them we muſt apply weaker. When the matter is groſſe and cold, things cutting and attenuating, and then emollients are to be uſed, and ſo by degrees come to diaphoretickes; otherwiſe that onely is reſolved which is the moſt ſubtle of the unprofitable matter, the groſſer becomming concrete and hardened. But if the part be afflicted with a continuall defluxion, ſo that there may be danger of a gangrene or ſphacel, it is not lawfull then to make uſe of reſolvers, but you muſt in the place where the humour flowes, devide the skin by ſcarification, as it is moſt learnedly noted by ***Hollerius*** in that profitable booke of his left to poſterity, whoſe title is, *De materia Chirurgica*.

CHAP. XII.

Of ſuppuratives.

What a ſuppurative medicine is.

A Suppurative medicine is ſaid to bee that, which ſhutting the pores, and preventing tranſpiration by his emplaſticke conſiſtence, increaſeth the matter of native heat, and therefore turneth the matter caſt out of the veſſels into *pus* and *ſanies*. It is of nature hot and moiſt, and proportionable to the native heat of the part to which it is applied, and of an emplaſticke conſiſtence, that ſo it may hinder the native heat from being exhaled; in which reſpect it differeth from emollients and malactickes, of which wee ſhall ſpeake hereafter. There bee two kindes of ſuppuratives, for ſome doe it of themſelves, and by their proper qualitie; others by accident. Thoſe things which by their owne ſtrength do bring to ſuppuration, are either ſimples or compounds.

Differences of ſuppuratives.

Simples are *radix liliorum, cæpa, allium, malvarum omnium folia & ſemina, bugloſſum, acanthus, ſenecio, violæ, parietaria, crocus, caules, ficus, paſſula mundatæ*, with a decoction of theſe things, *farina tritici, farina volatilis, farina hordei excorticati, lolii, ſeminis lini & fœnugræci, galbanum, ammoniacum, ſtyrax pinguis, ladanum, viſcum aucupatorum, thus, pix, cera, reſina, colla, adeps ſuillus, vitulinus, vaccinus, caprinus, butyrum, vitellus ovi, œſipus humida, ſtercus ſuillum, columbinum, caprinum, pueri.*

Compounds are *oleum liliorum, lumbricorum, de croco, unguent. baſilicum, emplaſt. diachylon commune, magnum, de mucilaginibus.*

Suppuratives by accident.

Thoſe things doe ſuppurate by accident which worke it onely by the meanes of an emplaſticke conſiſtence: for ſo often times aſtringents, becauſe they are of earthy and thicke parts, are found to ſuppurate; ſuch are *unguentum de bolo nutritum*, and ſuch like. Such alſo are thoſe which by their coldneſſe keep the heat in, and ſhut the pores. Hence is it that the qualities of ſorrell are commended to generate *pus*: for whileſt it keepeth the heat within, it encreaſeth his effects, to the thickening of the ſuppurable matter, and the overcomming other rebellious qualities. We uſe things ripening in great inflammations, whoſe growth we cannot hinder with repellers, or increaſe with reſolvers or diſcuſſers.

CHAP. XIII.

Of mollifying things.

Gal. cap. 7. lib. 5. ſimpl.

How ſuppuratives and emollients differ.

THat is defined to bee a mollifying medicine, which by a ſtronger heat than that which is proper to ſuppuratives, without any manifeſt quality of drying or moiſtning, again malaxeth or ſofteneth hardned bodies: wherefore this differs from that which ſuppurates, becauſe that may bee hot in the firſt or ſecond degree, according to the ſeverall temper of the body, or part to which it is applied, working rather by the quantity of heat than the quality: contrariwiſe, that which mollifieth being endued with a greater heat, rather worketh by the quality of the heat, being otherwiſe in dryneſſe and moiſture temperate.

Although as many things agree together in ſome reſpects, though of a divers nature; ſo many emollients are ſuch as are hot in the firſt degree, and dry in the ſecond and third, that ſo they may the better diſperſe and diffuſe that which is congealed, by taking away a little of the humidity, which is contained within the part affected; but not by exhauſting it wholly by the violence of heate or drineſſe: for hereon would follow a greater hardneſſe.

The differences of emollients.

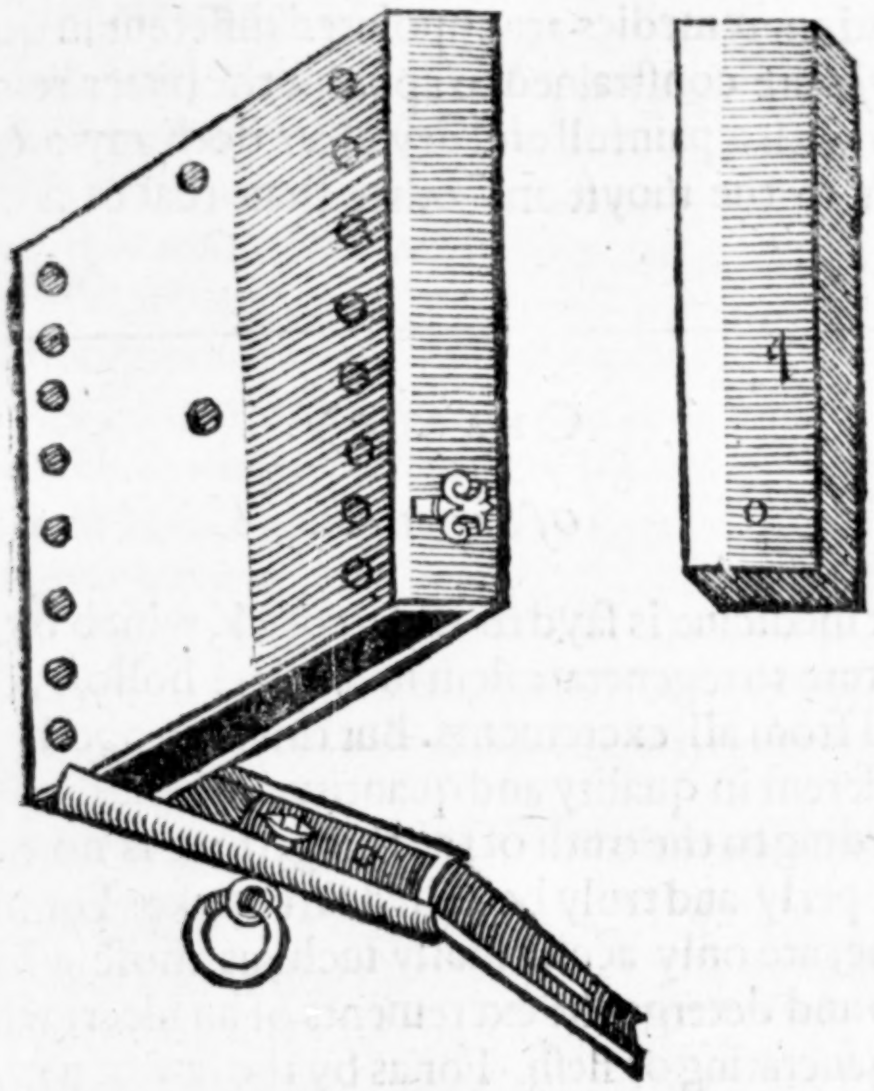
Things mollifying, are either ſimple or compound; and theſe againe ſtrong or weake. The weake are, *Radix liliorum alborum, cucumeris agreſtis, althææ, folia malvæ, biſmalvæ, liliorum, anethi ſummitates, viola, branca urſina, ſemen malvæ, biſmalvæ, lini, fænugræci, carici pingues, paſſulæ mundatæ, pedum, capitum, inteſtinorum vervecinorum decoctum, adeps ex junioribus & caſtratis, domeſticis, fæminis animalibus, adeps ſuillus, vitulinus, hædinus, caprinus, bubulus, vulpinus, gallinaceus, anſerinus, anatinus, olorinus, efficaces.* The weaker are things more gentle, as, *Butyrum, lana ſuccida, cera pinguis, vitellus ovi, medulla ex oßibus, cervina, ovilla, caprina.* The compound are oyle, wherein are boiled mollifying herbes, as, *Oleum liliorum, chamamelinum, amygdalarum dulcium.* Stronger emollients are, *Acetum, adeps taurinus, urſinus, cervinus, leoninus, pardalinus, apri, equi ſevum, pinea, picea, abietina, terebenthina, ammoniacum, bdelium, ſtyrax, galbanum, ladanum, propolis, opopanax, ung. de althæa, emp. diachylon commune & magnum, de mucilaginibus, ceroneum, oxycroceum, Joannis de vigo.*

Their uſe.

We uſe emollients in ſcirrhous tumours of the muſcles, or in the lips of ulcers, in any of the limbes, belly, glandules, bowels, by reaſon of a groſſe, cold, and viſcous matter, eyther flegmaticke, or melancholicke. Yet thoſe tumours which come of melancholy, commonly turne to cancers, which are exaſperated by mollifying things. On the contrary, ſuch as proceed from a flegmaticke matter, are brought to an equality of conſiſtence, by the uſe of emollients. Furthermore, there are three things obſervable in the uſe of emollients: the firſt is, duely to conſider how much the affected part differs from his proper and naturall temper and proportion, that ſo we may apply an equivalent remedy. The ſecond is, that wee diſtinguiſh the natures of the parts. The third is, that we artificially gather after what maner this mollifying muſt be performed, that is, whether we ſhould mingle with the emollients, deterſive or diſcuſſing medicines. For there are many deſperate ſchirrhous tumours, that is, ſuch as cannot be overcome by any emollient medicine, as thoſe which are growne ſo hard, that they have loſt their ſenſe; and thereupon are become ſmooth and without haires. Here you muſt obſerve, that the part ſometimes becomes cold in ſo great an exceſſe, that the native heate plainly appeares to languiſh, ſo that it cannot actuate any medicine. That this languiſhing heate may be reſuſcitated, an iron ſtove ſhall be ſet neere to the part, wherein a good thicke peece of iron heated red hot ſhall be incloſed, for ſo the ſtove will keep hot a long time.

Things obſervable in the uſe of emollients.

The figure of an iron ſtove.



A. *The caſſe of the ſtove.*
B. *The iron Bat to be heated.*
C. *The lidde to ſhut the ſtove.*

CHAP. XIV.

Of Deterſives, or Mundificatives.

A Deterſive is defined to be that which doth deterge or cleanſe an ulcer, and purge forth a double kinde of excrement; of the which one is thicker, which is commonly called *ſordes*, which is drawne forth from the bottome of the ulcer, by the edificatious quality of the medicine, the other is more thin and watery, which the Greekes call *Ichor*, the Latines *Sanies*, which is taken away by the drineſſe of the medicine; and therefore *Hippocrates* hath well adviſed, that every ulcer muſt be cleanſed and dryed.

Of Deterſives, ſome are ſimple, ſome compound, ſome ſtronger, ſome weaker. Detersives. The ſimple are eyther bitter, ſweet, or ſowre: the bitter are *Gentiana*, *Ariſtolochia*, *iris*, *enula*, *ſcilla*, *ſerpentaria*, *centaurinum minus*, *abſinthium*, *marrubium*, *perforata*, *abrotonon*, *apium*, *chelidonium*, *ruta*, *hyſſopus*, *ſcabioſa*, *arthemiſia*, *eupatorium*, *aloë*, *fumus terræ*, *hædera terreſtris*, a *lixivium* made with the aſhes of theſe things, *lupini*, *orobus*, *amygdala amara*, *faba*, *terebinthina*, *myrrha*, *maſtiche*, *ſagapenum*, *galbanum*, *ammoniacum*, the gals of Beaſts, *ſtercus caprinum*, *urina benè cocta*, *ſquamma æris*, *æs uſtum*, *ærugo*, *ſcoria æris*, *antimonium*, *calx*, *chalcitis*, *miſy*, *ſory*, *alumen*. The ſweet are *Viola*, *roſa*, *mellilotum*, *ficus pingues*, *dactyli*, *uvæ paſſæ*, *glycyrrhiza*, *aqua hordei*, *aqua mulſa*, *vinum dulce*, *mel*, *ſaccharum*, *ſerum lactis*, *manna*, *thus*. The ſharpe are all kinde of ſowre things, *Capreoli vitium*, *acetum*, and other acide things. The compound are *Syrupus de abſinthio*, *de fumaria*, *de marrubio*, *de eupatorio*, *de arthemiſia*, *acetoſus*, *lixivium*, *oleum de vitellis ovorum*, *de terebinthina*, *de tartaro*, *unguentum mundificativum de apio*, *apoſtolorum*, *pulvis mercurialis*. We uſe ſuch things as deterge, that the ſuperfluous matter being taken away, nature may the more conveniently regenerate fleſh to fill up the cavity: Their uſe. But in the uſe of them, conſideration is firſt to bee had of the whole body, whether it be healthy, plethoricke, or ill diſpoſed, there is conſideration to be had of the part, which is moyſter and drier, endued with a more exquiſite or duller ſenſe. But oftentimes accidents befall ulcers beſides nature, as a *callus*, a defluxion of a hot or otherwiſe maligne humour, and the like ſymptomes. Laſtly, conſideration is to be had, whether it be a new or inveterate ulcer; for from hence, according to the indication, remedies are appointed different in quantity and quality: ſo that oftentimes wee are conſtrained to appoint the bitter remedy in ſtead of the ſweet. Neither truly with a painfull and dry ulcer doth any other than a liquid deterſive agree: neither to the moyſt any other than that of a dry conſiſtence, as Powders.

Chap. XV.

Of Sarcoticks.

No medicine truly ſarcotick.

That medicine is ſayd to be ſarcotick, which by its drineſſe helpes nature to regenerate fleſh in an ulcer hollow, & diligently cleanſed from all excrements. But this is properly done by bloud indifferent in quality and quantity. Wherefore, if we muſt ſpeak according to the truth of the thing, there is no medicine which can properly and truly be called ſarcoticke: For thoſe which vulgarly goe under that name, are only accidentally ſuch; as thoſe which without biting and eroſion do dry up and deterge the excrements of an ulcer, which hinder the endeavour of nature in generating of fleſh. For as by the law of nature, from that nouriſhment which flowes to the nouriſhing of the part, there is a remaine, or a certaine thin excrement, flowing from ſome other place, called by the Greekes *Ichor*, and by the Latines *Sanies*: Thus by the corruption of the part there concretes another groſſer excrement, termed *Rypos* by the Greekes, and *Sordes* by the Latines. That makes the ulcer more moyſt, this more filthy. Hence it is, that every wound which requires reſtitution of the loſt ſubſtance, muſt be cured with two ſorts of medicines, the one to dry up and waſte the ſuperfluous humidity thereof, the other to fetch off the filth: and by how much the wound is the deeper, by ſo much it requires more liquid medicines, that ſo they may the more eaſily enter into every part thereof.

But diverſity of things ſhall be appointed according to the various temper of the part. For if the affected part ſhall be moyſt by nature, ſuch things ſhall be choſen as ſhall be leſſe dry: if on the contrary the part be dry, then ſuch things ſhall bee uſed as be more dry; but many ſorts of medicines ſhall be aſſociated with the ſarcoticks, according to the manifold complication of the affects poſſeſſing the ulcer. Therefore nature only is to be accounted the workmaſter, and the efficient cauſe in the regenerating of fleſh, and laudable bloud the matteriall cauſe, and the medicine the helping or aſſiſting cauſe, or rather the cauſe without which it cannot be: as, that by cleanſing and moderately drying without any vehement heat, takes away all hinderances of incarnation and orders, and fits the bloud to receive the forme of fleſh. This kinde of medicine, according to *Galen*, ought to be dry only in the firſt degree, leſt by too much drineſſe, it might drink up the bloud and matter of the future fleſh, which notwithſtanding is to be underſtood of ſarcoticks, which are to bee applyed to a delicate and temperate body. For if the ulcer be more moyſt, or the body more hard than is fit, we may aſcend to ſuch things as are dry, even in the third degree. And hence it is, that ſuch drying medicines may firſt be called deterſives, and then preſently ſarcoticks. A ſarcoticke medicine is eyther ſimple or compound, ſtronger or weaker.

Simple Sarcotickes.

Simple ſarcoticke medicines are, *Ariſtolochia utraque, iris, acorus, dracunculus, aſarum, ſymphyti omnia genera, betonica, ſanicula, millefolium, lingua canis, verbena, ſcabioſa, pinpinella, hypericon, ſcordium, plantago, rubia major & minor, eorumq; ſucci. Terebinthina lota & non lota, reſina pini, gummi arabicum, ſarcocolla, maſtiche, colophonia, manna thuris, cortex ejuſdem, aloë, olibanum, myrrha, mel, vinum, ſanguis draconis, lythargyros auri, ſpodium, pompholix, tutia, plumbum uſtum lotum, ſcoria ferri.*

Compound Sarcotickes.

The compound ſarcoticks are, *Oleum hypericonis, ol. ovorum, maſtichinum, & catera olea, quæ balſami nomine appellantur, unguentum aureum, emp. de betonica, vigonis,*

gonis, de janua, Emp. gratia Dei, Emp. nigrum. We uſe not ſarcoticks before that the ulcer be cleanſed and freed from paine, defluxion, inflammation, hardneſſe, and diſtemper. In uſing theſe things we conſider the temper of the body, and the affected part: For oft-times a part otherwiſe leſſe dry by nature, requires a more powerfull drying medicine, and ſtronger ſarcotick, than another part which is more dry, and this for ſome other reaſon, which ought to come into our conſideration: For example, the glans would be more dryed than the prepuce, although it be of a temper leſſe dry, becauſe it is the paſſage of the urine. Wherefore wee muſt diligently obſerve the condition of the affected parts, and thence taking indication, make choice of more ſtrong ſarcoticks. For both that which is too little, and that which is too much ſarcoticke, makes a ſordid ulcer: the firſt, becauſe it dries not ſufficiently; the latter, for that by its acrimony it cauſeth defluxion. Therefore diligent care muſt bee uſed in the examination hereof.

CHAP. XVI.

Of Epuloticks, or ſkinning medicines.

AN Epuloticke medicine is that which covereth the part with skin: it is ſaid to bee ſuch as by drineſſe and aſtriction without biting deſiccates, bindes, and condenſates the fleſh into a certain callous ſubſtance, like to the skinne, which we commonly call a cicatrize or ſcarre: yet this, as the generating of fleſh, is the worke of nature. A medicine therefore is ſaid to be Epuloticke, for that it aſſiſts nature in ſubſtituting and generating a ſcarre, in ſtead of the true skinne, whileſt it conſumes the ſuperfluous humidities, condenſates, incraſſates, and binds the next adjacent fleſh; therefore it ought to dry more powerfully than a ſarcoticke. Epuloticke medicines are of three kindes: the firſt is the true epulotick, which only dries and binds. The ſecond is an acride and biting epuloticke, which, for that it waſtes the proud fleſh, is called ſo; and this muſt bee ſparingly uſed, and that only to hard and ruſticke bodies. The third is that which onely dries without aſtriction. The things whereof they conſiſt are theſe: *Ariſtolochia utraque, gentiana, iris, centaurium majus, pentaphyllon, ſymphitum majus, chamædrys, betonica, cauda equina, eupatorium, verbenaca, plantaginis & ſymphyti folia, gallæ, baccæ myrti, glandes & earum calices, balauſtia, cupreſſi nuces, malicorium, cortex quercus, cortex tamaricis, cortex ligni aloës, acacia, colophonia, ſarcocolla, ſanguis draconis, ladanum, lithargyros auri, argenti, ceruſa, plumbum uſtum, alumen uſtum, tuthia, ſquamma æris & ferri, & eorum ſcoria, ærugo, flos æris, æs uſtum & lotum, ſulphur vivum, chryſocolla, corali, bolus armenus, terra ſigillata, cineres buccinarum, oſtreorum, ſilicis, oſſa uſta & ſiccata, caries lignorum, ung. diapompholygos, ung. alb. rhaſis, deſiccativum rubrum, emp. de ceruſa, de betonica, diacalcitheos, emp. nigrum.*

Three ſorts of Epuloticks.

We uſe Epuloticks when as the ulcer is almoſt filled up, and equall to the adjacent skinne. In the uſe of theſe we muſt alſo have reſpect to the tenderneſſe and hardneſſe of the body; for ſuch things as are corroſives to tender and delicate bodies, are epuloticke to hard and ruſticke bodies. Alſo wee muſt have regard, whether the body be plethoricke or replete with ill humours, for ſuch do not eaſily admit cicatrization. Alſo it is moſt worthy of your obſervation, to marke whether the ulcer that is to be cicatrized, be fed or nouriſhed by the preſent defect of any part, as the liver, ſpleene, lungs, or a *varix* lying about it. For it cannot be cicatrized before theſe impediments (if any ſuch be) be taken away. Laſtly, the callous lips of an ulcer, unleſſe they be ſcarified or ſoftened, hinder cicatrization. Therefore all ſuch defaults muſt be taken away, and then ſuch an epuloticke applyed, as may not by the too much drineſſe leave the ſcarre too hollow, or the too little, leave it too high.

Their uſe.

CHAP. XVII.

Of Agglutinatives.

AGlutinating or agglutinative medicine is of a middle nature, between the ſarcoticke and epuloticke, more ſtrong than the former, and weaker than the latter, for it is dry to the ſecond degree. It by the drying and aſtrictive faculty, voide of all deterſion, conjoynes parts that are diſtant, or rather lends helping hands to nature the principall agent in this work. Glutinatives, whether they be ſtrongly or weakly ſuch, doe agglutinate either by their proper or accidentall nature: Of this ſort are *Plantaginis omnes ſpecies, conſolida utraque, bugloſſa, millefolium, verbena, pimpinella, piloſella, cauda equina, ſempervivum, telephium, ſanicula, atractilis, folia quercus & dracunculi, ſalix, ebulus, ſambucus, pentaphyllon, veronica, cortex pini, ulmi, palma quercus, Aqua vitis, aq. è folliculis ulmi, ſuccus calaminthæ, vinum auſterum, terebinthina, myrrha, ſanguis draconis, bolus armenus, terra ſigillata, omnia denique acerba.*

Agglutinative medicines.

Glutinatives by accident.

Glutinatives by accident are thoſe that hinder defluxion, and binde the part, as Sutures, Bandages, reſt, rowlers, and the like. We uſe glutinatives in greene, and as yet bloudy wounds, whence the Greekes call a glutinative medicine *Enæma*, although ſometimes they are uſed to inveterate, maligne, fiſtulous and ſinuous ulcers; for they hinder the defluxion from comming to the lips of ulcers. You muſt conſider, when as you intend to apply them, whether the skinne be whole or no: For ulcers knit together, or heale more difficultly, if the skinne be rubbed off, or cut, or otherwiſe loſt. Neither ought you to be unmindfull of the fore-mentioned cautions and indications drawne from the ſexe, the tenderneſſe or hardneſſe of the affected body, the continuance and magnitude of the ulcer: for hence indication muſt bee taken, what the quantity and quality of the medicine ought to be.

CHAP. XVIII.

Of Pyrotickes, or cauſticke Medicines.

THat medicine is ſaid to be Pyroticke or Cauſticke, which by its acrimony and biting, commonly conſiſting in an earthy conſiſtence, either ſuperficially corrodes, or more deeply eates and putrefies, or laſtly, burnes and conſumes the skin and fleſh, ſo that it even pierces into callous and hard bodies. Therefore there are three degrees of Pyrotickes; for ſome are termed cathæreticke or corroding, for that they waſte the proud fleſh of an ulcerated or any other part, and theſe are judged the weaker ſort of the Pyrotickes. Otherſome are termed Septicke or putrefying, as thoſe which deſtroy and diſſolve the tender and new ſprung up fleſh, and raiſe bliſters in the skinne, and theſe are more powerfull than the cathæretickes. Laſtly, there are otherſome termed moſt powerfull Eſcharotickes, which by their fiery and terreſtriall quality cauſe eſchars or cruſts; whereupon they are alſo termed *Ruptoria*, & potentiall Cauteries: Now all theſe differences are taken from that they are more or leſſe powerfull. For it oft-times happens, that according to the different temper and conſiſtence of the parts, according to the longer or ſhorter ſtay, a Cathæreticke may penetrate as farre as a Septicke, and on the contrary, an Eſcharoticke may enter no farther than a Septicke.

Three degrees of Cauſticks.

Cathæreticks.

Theſe are judged Cathæretickes, *Spongia uſta, alumen uſtum & non uſtum, vitriolum uſtum, calx mediocriter lota, ærugo, chalcanthum, ſquamma æris, oleum de vitriolo, trochiſci andronis, phaſionis, aſphodelorum, ung. Ægyptiacum, apoſtolorum, pulvis mercurii, arſenicum ſublimatum.*

Septickes and Veſicatories.

Septickes and Veſicatories are, *Radix ſcillæ, bryoniæ, ſigill. beatæ Mariæ, bugloſſa, radix ranunculi, panis porcini, apium, riſus, lac tithymallorum, lac fici, euphorbium, ana-*

cardus, ſinapi, cantharides, arſenicum ſublimatum: For all theſe weaken the native temper and conſiſtence of the part, and draw thereunto humours plainly contrary to nature.

Eſcharoticks.

Eſcharotickes or Cauſtickes are, *Calx viva, fæx vini cremata, & præcipuè aceti, ignis*, whereto are referred all Cauteries, as well actuall as potentiall, whereof wee ſhall treat hereafter.

Their uſe.

Wee uſe Cathæretickes in tender bodies and diſeaſes not very contumacious; therefore by how much they are leſſe acride & painfull, by ſo much oft-times they penetrate the deeper, for that they are leſſe troubleſome by delay; but we uſe Septickes, and ſometimes Eſcharotickes in ulcers that are callous, putride, and of inexhauſted humidity, but principally in cancers, carbuncles, and exceſſive hæmorrhagies. When as we make uſe of theſe, the patient muſt have a convenient dyet appointed, muſt abſtaine from wine: laſtly, they muſt not be uſed but with great diſcretion; for otherwiſe they may cauſe feavers, great inflammations, intolerable paines, ſwounings, gangrenes, and ſphacels. Cauteries heedfully uſed, ſtrengthen and dry the part, amend an untameable diſtemper, dull the force of poyſon, bridle putrefaction and mortification, and bring ſundry other benefits.

CHAP. XIX.

Of Anodynes, or ſuch as mitigate or aſſwage paine.

What paine is.

Before we treat of Anodyne medicines, we thinke it fit to ſpeake of the nature of paine. Now paine is a ſorrowfull and troubleſome ſenſe, cauſed by ſome ſodaine diſtemper, or ſolution of continuity. There are three things neceſſary to cauſe pain; The efficient cauſe, that is, a ſodain departure from a naturall temper or union: the ſenſibleneſſe of the body receiving the dolorificke cauſe: laſtly, the apprehenſion of this induced change, cauſed either by diſtemper or union; for otherwiſe with how exquiſite ſoever ſenſe the body receiving the cauſe is indued with, unleſſe it apprehend and marke it, there is no paine preſent. Hence is that Aphoriſme of *Hippocrates*, *Quicunq; parte aliqua corporis dolentes dolorem omninò non ſentiunt, his mens ægrotat*, that is, Whoſoever pained in any part of their bodies doe wholly feele no paine, their underſtanding is ill affected and depraved. Heat, cold, moiſture, and drineſſe, induce a ſodain change of temper; and heate and cold cauſe ſharpe paine, drineſſe moderate, but moiſture ſcarce any at all: for moiſture cauſeth not paine ſo much by its quality, as it doth by the quantity. Both the fore-mentioned qualities, eſpecially aſſociated with matter, as alſo certaine externall cauſes too violently aſſailing, ſuch as theſe that may cauſe contuſion, cut, pricke, or too much extend. Wherefore paine is a ſymptome of the touch, accompanying almoſt all diſeaſes; therefore oft-times leaving theſe, they turn the councell of the Phyſitian to mitigate them, wch is performed either by mitigating the efficient cauſes of paine, or dulling the ſenſe of the part. Hereupon they make three differences of Anodynes: For ſome ſerve to cure the diſeaſe, otherſome to mitigate it, otherſome ſtupefie, and are narcotick. We terme ſuch curative of the diſeaſes, which reſiſt, and are contrary to the cauſes of diſeaſes. Thus paine, cauſed by a hot diſtemper, is taken away by oyle of Roſes, Oxycrate, and other ſuch like things, which amend and take away the cauſe of paine, to wit, the exceſſe of heate. Paine cauſed by a cold diſtemper, is amended by *Oleum Laurinum*, *Nardinum*, *de Caſtoreo*. Paine occaſioned by too much drineſſe, is helped by *Hydræleum*, a bath of freſh and warme water. Laſtly, by this word Anodyne, taken in the largeſt ſenſe, we underſtand all purging medicines, Phlebotomy, Scarification, Cauteries, Cuppings, Glyſters, and other ſuch like things as evacuate any ſtore of the dolorificke matter. But ſuch as are properly termed Anodynes, are of two ſorts: for ſome are temperate, others hot and moiſt in the firſt degree, and conſequently, neere to thoſe that are temperate: theſe preſerve the native heate in the proper integrity, thus they amend all diſtemperatures; of this kinde are accounted Sallade oyle, oyle of ſweete

What properly termed Anodynes are.

almonds, the yolks of egs, and a few other ſuch like things, theſe ſtrengthen the native heat, that thus encreaſed in ſubſtance, it may with the more facility orecome the cauſe of paine: beſides alſo, they rarifie, attenuate, digeſt, and conſequently evacuate both groſſe and viſcide humours, as alſo cloudy flatulencies hindred from paſſing forth: ſuch are *flores chamæmeli, meliloti, crocus, oleum chamæmelinum, anethinum, oleum lini, oleum ex ſemine althææ, lumbricorum, ovorum, ex tritico, butyrum, lana ſuccida, ſuillus adeps, vitulinus, gallinaceus, anſerinus, humanus, ex anguilla, cunicula, & aliis. Lac muliebre, & vaccinum, mucago ſeminis lini, fænugræci, althææ, malvæ, vel eiuſmodi ſeminum decoctum*: as alſo *Decoctum liliorum, violariæ, capitis, pedum, & inteſtinorum arietis & hædi.*

Narcoticks improperly termed anodines.

Narcotickes, or ſtupefying medicines, improperly termed Anodines, are cold in the fourth degree, therefore by their exceſſe of cold, they intercept or hinder the paſſage of the animall ſpirit to the part, whence it is that they take away ſenſe: of this ſort are *hyoſcyamus, cicuta, ſolanum manicum, mandragora, papaver, opium, arctiſſima vincula.*

The uſe of them.

You may make uſe of the firſt ſort of Anodynes in all diſeaſes, which are cured by the oppoſition of their contraries: but of the ſecond, to expugne paines that are not very contumacious, that by their application wee may reſiſt defluxion, inflammation, the feaver, and other ſymptomes. But whereas the bitterneſſe of paine is ſo exceſſive great that it will not ſtoop to other medicines, then at the length muſt wee come to the third ſort of anodynes. Yet oft times the bitterneſſe of paine is ſo great that very narcoticks muſt be applied in the firſt place, if we would have the part and the whole man to be in ſafety. Yet the too frequent uſe of them, eſpecially alone without the addition of ſaffron, myrrh, *caſtoreum*, or ſome ſuch like thing, uſeth to be very dangerous: for they extinguiſh the native heat, and cauſe mortification, manifeſted by the blackeneſſe of the part. But intolerable paines, to wit, ſuch as are occaſioned by the exceſſe of inflammation and gangrenes, may bee ſooner mitigated by opening a veine, purging and ſcarifying the part affected, than either by properly termed anodines or narcotickes, to wit, that paine may bee the remedy of paine. By purgers we here underſtand not onely ſuch, as taken by the mouth, produce that effect, but alſo ſuch as outwardly applied performe the ſame, as thoſe whereof *Aetius* makes mention. As,

Tetrab. 1. ſem. 3. cap. 35.

Purgatives to bee externally applied.

℞. *pulpæ ſeu medul. colocynth. ſemin. eruc. rut. ſylveſt. elaterii, gr. cindii, lathyrid. expurgatar. galban. nitri, ceræ, ſingulorum,* ℥ iiii. *opopan.* ʒ ii. *terebinth.* ʒ vi. *terendaterito, & taurino felle paulatim irrigato, donec apte imbibantur.* Then apply it about the navill even to the ſhare, for thus it will purge by ſtoole; if on the contrary you apply it to the bottome of the ſtomacke, it will cauſe vomit. Another; ℞. *elaterii,* ʒ iii. *colocynth. ſcammon. ſquammæ æris, radic. cucumer. agreſt. lathyrid. an.* ʒ i. *aut pro lathyrid. tithymal. ſuccum terito & cribrato, ac cum oleo plurimum ſalis habente ſubigito; magnam inde pilam e lana confertam hoc medicamento illitam, umbilico aut lumbis applicato.* Or, ℞. *fellis taurin.* ʒ i. *gr. cindii virid.* ℥ iv. *ſucci lupinor. virid.* ℥ ii. *euphorb.* ℥ i. *pulp. colocynth. tantundem adip. vulpin. recent.* ℥ ii. *adip. viper.* ℥ ii ß. *ſtercor. muris,* ℥ iv. *ſucci pæon. caſtor. ſingulor.* ʒ iv. *ol. liguſtrin.* ℥ vi. *ol. antiq.* ℥ i. *fiat unguentum vel oleum.* It purgeth without trouble, and beſides the other commodities it alſo is good againſt diſtraction or madneſſe. Two ſpoonefulls is the greateſt quantity to be uſed at one time, for in ſome one is ſufficient: anoint with it the navill and thereabouts, and a juſt purgation will enſue thereupon, which if it ſhall flye out beyond your expectation, you may foment the belly with a ſponge moiſtened in warm wine and preſſed forth againe, and it will be preſently ſtayed. Moreover *Fernelius lib. 7. methodi*, makes mention of a laxative ointment.

The compoſition of a purging oile and ointment.

CHAP.

CHAP. XX.

Of the compoſition and uſe of Medicines.

Hitherto wee have ſpoken of the faculties of ſimple medicines, now wee thinke good to ſay ſomething of the compounding of them: for ſo by the Architect are had & known every thing apart, and then he ſettles the workemen to the building, the conceived forme of which hath beene in his minde ever ſince hee did enterpriſe it. Therefore the compoſition of divers medicaments with their qualities and effects, is a mingling appointed by the art of the Phyſitian. Hence therefore *rheum, aloe, roſa, abſinthium*, although they have divers ſubſtances and faculties, yet are notwithſtanding called ſimple medicines, becauſe they have that variety from nature, not from art. But we many times call ſimple ſuch things as are compounded by art, as *oxym. ſimpl. oxyſacch. ſimplex*, as compared to greater compoſitions. And therefore often times wee uſe compound medicines, becauſe alwaies the ſimple medicine alone, hath not ſtrength enough to oppugne the diſeaſe. For many times the ſicke labour with manifold, and not ſimple affects, from which there being taken a various indication, we gather contrary ſimple medicines, to apply to every affect, in one compoſition. But often times the nature of the part of the patient, or of the body affected, requireth another kind of medicament which may bee proper for the removing that diſeaſe; wherefore it is ſo made to oppugne the diſeaſe and not offend the body: and we mingle many other together, whoſe effects may temper one another. Moreover, the compoſition of medicines was neceſſary, that becauſe thoſe things which have not a good taſte, colour, or ſmell, by art or compoſition might be made more gratefull. Compound medicines of which we intend to ſpeak, are Glyſters, Suppoſitories, *Noduli*, Peſſaries, Oiles, Liniments, Ointments, Emplaſters, Cerats, Pultiſſes, Cataplaſmes, Fomentations, Embrocations, Epithemaes, Veſicatories, Cauteries, *Collyria, Errhina*, Sneeſing powders, Maſticatories, Gargariſmes, Dentifrices, Bags, Fumigations, Semicupiums, Baths. But firſt it is expedient that I ſay ſomething of weights and meaſures, with their notes, by which medicines commonly are meaſured and noted by Phyſitians.

Gal. 2. ſimp. 4. de ſanit. tuend.

The neceſſity of compound medicines.

CHAP. XXI.

Of weights and meaſures, and the notes of both of them.

Every weight ariſeth from a beginning and foundation, as it were; for as our bodies doe ariſe of the foure firſt ſimple bodies or elements, into which they are often reſolved: ſo all weights do ariſe from the graine, which is as it were the beginning and end of the reſt. Now hereby is underſtood a barly corne or graine, and that ſuch as is neither too dry, or overgrowne with mouldineſſe, or rancide, but well conditioned, and of an indifferent bigneſſe.

A graine the beginning of all weight.

What is meant by a graine.

Ten graines of theſe make an *Obolus*; two Oboli, or twenty graines make a ſcruple, three ſcruples, or ſixty graines make a dramme, eight drammes make one ounce, twelve ounces make one pound medicinall, which is for the moſt part the greateſt waight uſed by Phyſitians, and which they ſeldome exceed; and it is reſolved into ounces, drammes, ſcruples, *oboli* and graines, which is the leaſt weight. To expreſſe theſe weights we uſe certaine notes, the pound is expreſſed by this note, ℔. the ounce by this, ℥. the dramme thus, ʒ. the ſcruple thus, ℈. the *obolus* with the beginning letter thus, *obol.* the graine with his beginning letter thus, g. But ſometimes we meaſure the quantity of medicines by meaſures and not alwaies by weights; and therefore we expreſſe a handfull by this note, m. a pugill thus, p. number thus, n. and the halfe part of every weight and meaſure is expreſſed by this note, ß. put after every note of the aforeſaid weights and meaſures of the ſame ſort, as the halfe pound,

Obolus.
A ſcruple.
A dramme.
An ounce.
A pound.

℔ ß. the halfe ounce, ℥ ß. and ſo of the reſt. Moreover, in deſcribing the ſame medicament wee uſe the notes ſometimes of weights, ſometimes of meaſures; and therefore it is to bee noted that herbes, greene or dry, are ſigned with theſe notes, m. p. but thoſe which are dry and be brought to powder, with theſe notes, ℥. ʒ. p.

Roots,	by theſe notes,	℥. ʒ. p. m.
Barks,		℥. ʒ.
Seeds,		℥. ʒ.
Fruits,		an. p. ℥. ʒ. ℈.
Flowers,		p. m. ℥. ʒ.
Pulſes,		p. ℥. ʒ.

All other medicaments either dry or liquid, are deſcribed with theſe notes, ℔. ℥. ʒ. ℈. obol. g.

The neceſſity of compound medicines. Having expounded theſe things, let us come to the deſcription of compound medicines, beginning with glyſters firſt, as the remedy which is moſt common and familiar, and almoſt chiefly neceſſary of all others.

Chap. XXII.

Of Glyſters.

What a glyſter is. A Glyſter is an injection prepared firſt and properly for the groſſe inteſtines and fundament; for ſometimes glyſters are uſed & made for the ſtomack, ſpleen, reines, bladder, wombe, meſentery, and alſo for the head, from whence often times by ſharpe glyſters, the hurtfull matter is brought downewards, as we ſee in Apoplexies. Therefore there is no part of the body which receives not ſome benefit by glyſters, but more or leſſe according to the vicinity they have with the belly, and the ſtrength of the glyſter: Differences of glyſters. for there are divers ſorts of glyſters, ſome emollients, other evacuating, ſome anodines, ſome aſtringents, ſome cleanſing, ſome ſarcoticke, and epuloticke, and ſome may bee ſaid to nouriſh. The materials of glyſters. They are all made of the parts of plants or beaſts, with compound medicines either ſolutive or altering, and others according to the adviſe of the Phyſitian. The parts of plants which are uſed to this purpoſe, are roots, ſeedes, leaves, flowers, fruits, ſhouts, juices, mucilages. Parts of beaſts are yelkes of egges and whites, honey, chickens, capons, old cockes well beaten, heads and feet of ſheepe, the inteſtines, whey, milke, ſewet, axungia, and ſuch like in decoctions, wherein wee mingle and diſſolve ſimple and compound medicines. Wee ſometimes uſe without any other medicament, to make a glyſter with oyle alone, as oile of nuts for the Cholicke, of whey alone, the decoction of the head and feet of the ſheepe alone, and of the decoction of Cicers and barly do we prepare glyſters.

Their quantity. The quantity of a glyſter is ſometimes leſſe according to the divers diſpoſition of men and their diſeaſes: for weake children the quantity is leſſe: for women with child, and in the cholicke, dyſentery, lyentery, or when much hardened excrement is within. But when wee would abundantly move the excrement, and there is nothing that may hinder, the doſe of a glyſter for the moſt part is halfe a pound, one pound, or three quarters of a pound. The glyſter muſt bee injected warme or hot, more or leſſe, according to the nature or condition of the ſicke; for being cold it offends the inteſtines, and the neighbouring nervous parts, which are cold of themſelves. It muſt bee given by degrees, for being injected ſodainely, the winde which is uſually in the guts will beat it backe againe, whence comes intolerable pain. But this will bee more cleere by that wee ſhall teach concerning the differences of glyſters, whereof there ſhall be ſufficient examples-

An emollient glyſter. ℞. *malv. violar. biſmalv. acanth. an.* m i. *radic. alth. lilior. an.* ℥ i. *paſſul. ficuum ping.* ℥ ß. *fiat decoctio ad* ℔ i. *in qua diſſolve caſſ. butyr. recent. an.* ℥ i. *ol. viol.* ℥ iii. *fiat clyſter.*

A Glyſter to evacuate a cold phlegmaticke humour.

Glyſters, that doe evacuate, are prepared by the councell of the Phyſitian, and of divers Simples, being boyled for ſeverall purpoſes. Therefore if the humours bee cold which are to bee evacuated, the Glyſter ſhall be after this manner: ℞.*Salviæ, origani, abrotoni, chamæm.melilot.an.*m.ß.*ſeminum aniſi, fœnic.cumini, an.*ʒiii.*ſemin. carthar.*ʒii. Make a decoction of them, wherein diſſolve *Diaphon.Hier.Simpl.an.*℥ß.*ol.aneth.chamæm.an.*℥i.ß.*Mellis Antho.ſach.rub.an.*℥.i.*fiat Clyſter.*

To evacuate Cholericke matter, prepare a Glyſter after this manner.

℞.*quat.remollient.pariet:Cichor:endi.an.*m.ß.*Semin.quat.frigid. Major.an.*ʒiii.*hordei integri* p.i. Make a decoction of them, and diſſolve in it *Caſſ.*℥.i.*Ol.viol.mellis viol.an.*℥ii.*fiat Clyſter.*

To evacuate melancholy, this Glyſter following will be uſefull.

℞.*Fumiter.Centaur.minoris, Mercurialis, an.*m.i. *Polyp. Qu.folicul.ſennæ, an.*ʒiii. *ſeminis agni caſti, Thymi, an.*ʒii. Make a decoction, and diſſolve therein, *Confect.Hamech.*℥ß.*Caſſ.recens extract.*ʒiii.*olei violati, lilior.an.*℥ß.*Sach.rub.mellis viol.an.*℥iß.*ſalis*, ʒi. And thoſe Glyſters doe not only evacuate the humours that offend, but alſo correct the diſtemper of the bowels and inward parts. For the Glyſters deſcribed againſt pituitous and melancholy matter, helpe the cold diſtemper; but that which is for choler, the hot diſtemper. Purging medicines, which are diſſolved in the decoctions of Glyſters, are very ſtrong, as, *Confect.Hamech.Benedicta, Diaprun. Solutivum, Diaphænicon*, being uſed from ʒ.vi.to ℥i.at moſt: but the weaker and more gentle are *Catholicon. Caſſia, Hiera ſimplex*, from ʒvi.to ℥ii.at moſt.

An Anodyne Glyſter is uſually made without ſuch things as
purge or evacuate: as,

An Anodyne Glyſter.

℞.*Flor.Chamæm.melil.Aneth.an.*p.i.*rad.Biſmal.*℥.i. boyle them in Milke, and to the decoction adde *Mucaginis ſeminis lini fœnugræci extractæ in aqua Malvæ* ℥ ii.*ſachari albi, olei anethi, chamæmeli, an.*℥i.*vitellos ovorum duos, fiat Clyſter.* Theſe Glyſters ſhould be kept longer in the body, that ſo they may more eaſily mitigate paine.

The example of an aſtringent Glyſter.

An aſtringent Glyſters.

℞.*Equiſeti, plantag.poligani.an.*m.i. boyle them *in lacte uſtulato*, to ℥xii.to the decoction ſtrained adde *Boli armeni, ſanguinis draconis, an.*ʒii.*olei roſati*, ℥ii.*album. ovorum duorum, fiat Clyſter.* We uſe theſe kinde of Glyſters in Dyſenteries, and in the immoderate fluxe of the Hemoroid veines, having firſt evacuated the uſuall excrements. Glyſters, which be ſarcoticke, epuloticke, and cleanſers of the greater guts, and fit for the curing of ulcers, are to be prepared of ſuch medicines as are deſcribed before in their proper Chapters.

Nouriſhing Glyſters.

Alimentary Glyſters are made of the decoction of Chickens, Capons, Cockes, being boyled to a gelly, and ſtrongly preſt forth. They are alſo prepared of Marrow, gelly, which are not altogether ſo ſtrong as thoſe which are commonly taken by the mouth, becauſe the faculty of concoction in the guts, is much weaker than that of the ſtomacke. Oftentimes alſo the matter of theſe kinde of Glyſters are prepared in wine, where there is no paine of the head or feaver, but more frequently in the decoction of Barley, and in Milke, adding the yelkes of Egges, and ſome ſmall quantity of white Sugar, leſt by the cleanſing faculty it move the guts to excretion. And therefore Sugar of Roſes is thought better, which is conceived to bee ſomewhat binding. Here you may have examples of ſuch Glyſters. ℞.*Decoctionis Capi perfectè cocti* ℔.i.ß.*ſachari albi*, ℥ß.*miſce, fiat Clyſter.* ℞.*Decocti Pulli & Galatinæ, an.* ℔ ß. *vini opt.*℥iv.*fiat Clyſter.* ℞.*Decocti hordei mundati, & in cremorem redacti* ℔.ß.*lactis boni* ℔.i.*Vitellos ovorum duos, fiat Clyſter.* We uſe theſe kinde of Glyſters to ſtreng-

Their uſe.

then

Their Argument that deny Glyſters to nouriſh. Confuted firſt by reaſon.

Secondly, by experience.

then children, old and weake men, and bodies which are in a Conſumption. But in the uſe of theſe there are three things to be obſerved: Firſt, that the fæculent excrements be taken away, either by ſtrength of nature, or by art, as by a ſuppoſitory, or an emollient Glyſter, leſt the alimentary matter, being mingled with them, ſhould ſo be infected and corrupted. The other is, that there be great quantity given, that ſo ſome may aſcend to the upper guts. The third is, that the ſicke ſleep after the taking of it; for ſo it is more eaſily converted into nouriſhment, and the alimentary matter is better kept: for ſleep hindereth evacuations. In Glyſters of this kinde wee muſt beware of Salt, Honey, and Oyle; for the two firſt provoke excretion by their acrimony, and the laſt by his humidity doth relaxate and lubricate. They, who thinke no kinde of Glyſter can nouriſh or ſuſtaine the body, relye upon this reaſon: That it is neceſſary whatſoever nouriſheth, ſhould have a triple commutation or concoction in the body: firſt, in the ſtomacke; ſecondly, in the liver: thirdly, in all the members. But this opinion is repugnant to reaſon and experience: to reaſon, for that a certaine ſenſe of ſuch things as are defective, is implanted in all and every of the naturall parts of our body. Therefore ſeeing nutrition is a repletion of that which is empty, without doubt the empty and hungry parts will draw from any place that nouriſhment which is fit and convenient for them, and in defect thereof, whatſoever they meet with, which by any familiarity may aſſwage and ſatisfie their deſire. But the alimentary Glyſters, by us deſcribed, conſiſt of things which agree very well with the nature of our bodies, and ſuch as are boyled and ordered with much art, ſo to ſupply the chylification to bee performed in the ſtomacke. Therefore they may be drawne in by the meſeraicke veines of the guts, which, according to *Galen*, have a certaine attractive faculty. And thence they may bee eaſily carried through the gate veine, liver, and ſo over the whole body. And experience teacheth, that many ſick people, when they could take nothing by the mouth, have bin ſuſtained many daies by the helpe of theſe kinde of Glyſters. What is more to bee ſaid? We have ſeen thoſe who have taken a Suppoſitory by the fundament, and vomited it at the mouth; by which it alſo appeareth, that ſomething may flow without danger of the ſicke from the guts into the ſtomacke.

Commonly they give Glyſters any houre of the day, without any reſpect of time, but it ſhould not be done unleſſe a great while after meales, otherwiſe the meate, being hindered from digeſtion, will be drawne out of the ſtomacke by the Glyſter.

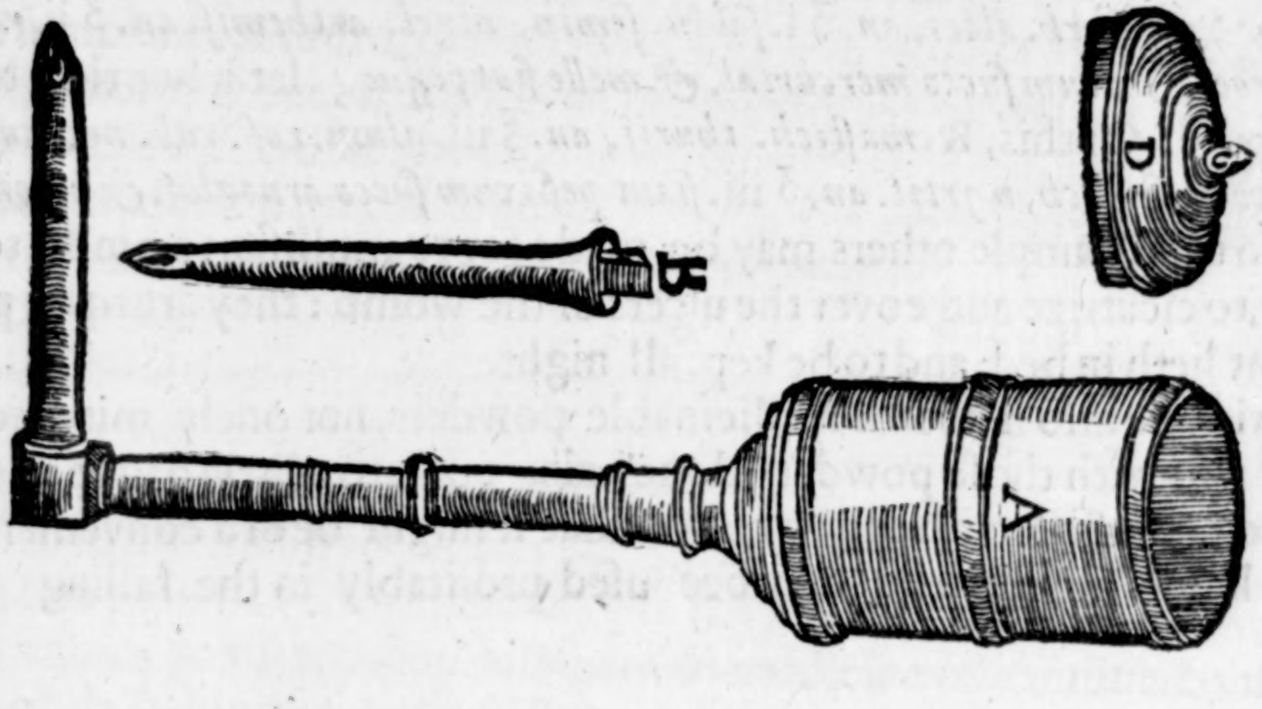
The common uſe of Glyſters.

The ſicke, having received the Glyſter, muſt turne to the ſide grieved.

Glyſters are uſed to helpe the weaker expulſive faculty of the guts, and by conſequence alſo of the other parts, both that ſuch as through want of age, and old people, and ſuch as by reaſon of great imbecility by ſickneſſe cannot admit of a purging medicine, may by this meanes at leaſt eaſe themſelves of the trouble and burden of hurtfull humours. *Galen* hath attributed to Storkes the invention of Glyſters, which with their bils, having drunke Sea water, which from ſaltneſſe hath a purging quality, waſh themſelves by that part, whereby they uſe to bring away the excrements of their meates, and of the body. But a Glyſter is fitly taken after this maner: whileſt the Syrenge is expreſſed, let the patient hold open his mouth; for by this means all the muſcles of the *Abdomen*, which helpe by compreſſion the excretion of the guts, are relaxed. Let him weare nothing that may gird in his belly, let him lye upon his right ſide, bending in a ſemicircular figure; and ſo the Glyſter will the more eaſily paſſe to the upper guts, and (as it were) by an overflowing, wet and waſh all the guts and excrements. It hapneth otherwiſe to thoſe who lye upon their left ſide; for the Glyſter being ſo injected, is conceived to abide, and (as it were) to ſtop in the *Inteſtinum rectum*, or *Colon*, becauſe in this ſite theſe two Inteſtines are oppreſſed, and as it were ſhut up with the weight of the upper guts. A little while he may lye upon his backe after hee have received the Glyſter, and preſently after hee may turne himſelfe on either ſide. And if there be paine in any part, ſo long as he is able he may incline to that ſide. Moreover, becauſe there are many, who cannot by any reaſon bee perſwaded to ſhew their buttockes to him that ſhould adminiſter the Glyſter, a fooliſh ſhamefaſtneſſe hindering them: therefore I thought good in this place to give the figure of an Inſtrument, with which one may give a Glyſter

ſter to himſelfe, by putting up the pipe into the fundament, lifting the buttockes a little up. The pipe is marked with this Letter *A*. The body of the Syrenge, whereinto the Glyſter muſt be put, with this Letter *B*.

The figure of a Glyſter pipe and Syrenge, by benefit whereof a man may give himſelfe a Glyſter.



CHAP. XXIII.

Of Suppoſitories, Nodules, and Peſſaries.

A Suppoſitory is a certaine medicament, formed like unto a tent, or gobbet of paſte, ſuch as is commonly uſed to fat Fowle. It is put up into the fundament, that it might excite the ſphincter muſcle to ſend forth thoſe excrements which are kept in the guts. Antiently it had the forme of an Acorne, whence it is called to this day *Glans*. The Suppoſitories we now uſually make have the forme of a Peſſary, that is, round and longiſh, in the forme of a waxe Candle. They are either weake, ſtronger, or ſharpe; the weake are made of the ſtalkes or the rootes of Beets, of Lard, boiled Honey with Salt, or of Caſtle-ſope. The ſtronger of purging powders, as, *Hiera* with Salt and Honey. The ſharp with Scammony, *Euphorbium, Coloquintida*, and like things powdred, and with Honey, or the juices of ſharpe herbes, or mingled with the gals of Beaſts. It is commonly made thus: as, ℞. *Mellis* ℥i. *Salis aut pulveris alterius irritantis* ʒi.

The differences.

The forme.

℞. *Mellis cocti* ℥i. *pul. Colocynthidos* ℈ß. *Salis gemmæ.* ℈i. *fiat Suppoſitorium.* Wee uſe Suppoſitories, when the ſicke by his infirmity is unwilling, or not able to beare or away with a Glyſter, as in burning Feavers: or, when as one being injected, is ſlow, and reſteth in the guts. And we uſe the ſharper Suppoſitories in ſeporiferous affects of the head, that they might provoke the dull faculty of the guts to expulſion. As alſo, when the condition of the diſeaſe is ſuch, that by the uſe of Glyſters there is manifeſt hurt; as, in an *Enterocele*, where the gut ſo ſwels, that over and above it be filled by the glyſter infuſed, it would the more preſſe the *Peritonæum*, ſo that ſtraightwaies by the relaxed or broken part it might eaſily be devolved into the Codde.

The uſe.

Nodules have the ſame uſe with Suppoſitories, and are oftentimes ſubſtituted in ſtead of Glyſters. They are made of gentle medicines, as the yelkes of Egges with a little Salt and Butter, or of Gall and Honey tyed up in a cloth in the forme of a Filbert, the ſtring of it may hang forth, whereby the Nodule in the fundament may be drawne forth. This deſcription may be an example of Nodules: ℞. *Vitellum unius ovi, cui adde ſalis modicum, fellis vervecis, mellis an.* ℥ß. *butyri* ℥iii. *miſce, fiant Noduli filo appenſi.*

The forme of a Nodule.

A Peſſary is groſſer than a Suppoſitory, and is appointed for the wombe, being made with Cotton-wooll or Silke ſteeped in ſome medicament, and then put into the necke of the wombe.

Peſſaries.

A Peſſary

Their uſe. A peſſary is uſed either to ulcers of the necke of the wombe, or for the procuring, or ſtopping of the *Menſtrua*, or againſt ſordide and hurtfull humours of the wombe cauſing hyſtericall paſſions, and therefore to be waſted away and evacuated. Therefore in the compoſition of peſſaries are uſed gummes, juices, ſeeds of herbes, roots, and many other things, according to the adviſe of the Phiſitian; they are alſo made of a ſolide conſiſtence, the bigneſſe of a finger, that they may enter into the necke of the wombe; theſe being tyed with a ſtring, which muſt hang forth to plucke it out withall when occaſion ſerves. This following may be an example of their deſcription. ♃. *myrrh. aloes, an.* ʒ i. *ſabin. ſemin. nigel. arthemiſ. an.* ʒ ii. *radic. ellebor. nig.* ʒ i. *croci*, ℈ i. *cum ſucco mercurial. & melle fiat peſſus*; let it bee tied to the thigh with a thread. Or this, ℞. *maſtich. thurii, an.* ℥ iii. *alum. roſ. rub. nuc. cupreſ. an.* ʒ ii. *ladan. hypoci. ſumach, myrtil. an.* ʒ iii. *fiant peſſi cum ſucco arnogloſ. & cotoniorum.* According to this example others may be made for to mollifie, to binde, to cleanſe, to incarnate, to cicatrize and cover the ulcers of the womb: they are to be put up when the patient lieth in bed, and to be kept all night.

Peſſaries are alſo made of medicinable powders, not onely mingled with ſome juice, but alſo with thoſe powders alone being put into a little bagge of ſome thinne matter, being ſtuffed with a little cotton that it might be of a convenient ſtiffeneſſe, and this kinde of peſſaries may bee uſed profitably in the falling of the mother.

An example of onē mentioned by Rondeletius *in his booke of inward Medicines, is as followeth.*

Againſt the ſuffocation of the Mother. ℞. *Benioini, ſtyracis, caryoph. an.* ʒ i. *gal. moſch.* ℥ ß. *moſchi*, gr. vi. *fiat pulvis*; this being made up with cotton may be put up into the body.

CHAP. XXIV.

Of Oyles.

PRoperly and commonly we call oile that juice which is preſſed forth of Olives; but the word is uſed more largely, for we call every juice of a fluxible, unctuous, and aiery ſubſtance, Oyle. There are three differences of theſe oleaginous juices: The firſt is of thoſe things which yeeld oile by expreſſion, as well fruits as ſeeds being bruiſed, that by beating the oily juice may be preſſed forth; ſome are drawn without fire, as oile of ſweet and bitter almonds, oyle of nuts, of *palma Chriſti*. Others are made to runne by the helpe of fire, by which meanes is gotten oile of baies, linſeed oyle, rape oyle, oile of hempe, and ſuch like: The manner of drawing oile from ſeeds is ſet downe by *Meſue* in his third booke.

The making oiles by infuſion. The ſecond ſort is of thoſe oyles which are made by the infuſion of ſimple medicines in oyle, wherein they leave their qualities: and this is done three ſeverall waies, the firſt is by boyling of roots, leaves, tops of flowers, fruits, ſeeds, gummes, whole beaſtes, with wine, water, or ſome other juice, with common, or any other oile, untill the wine, water, or juice bee conſumed, which you may perceive to bee perfectly done, if you caſt a droppe of the oyle into the fire, and it maketh no noiſe but burneth. It is to be remembred that ſometimes the ſeeds or fruits are for a certaine time to be macerated before they are ſet to the fire; but it muſt bee boiled in a double veſſell, leſt the oyle partake of the fire.

After this manner is made *oleum coſtinum, rutaceum, de croco, cydoniorum, myrtillorum, maſtichinum, de euphorbio, vulpinum, de ſcorpionibus*, and many others. The ſecond is by a certaine time of maceration, ſome upon hot aſhes, others in horſe dung, that by that moderate heat the oile might draw forth the effects of the infuſed medicines into it ſelfe. The third is by inſolation, that is, when theſe or theſe flowers, being infuſed in oile, are expoſed to the ſunne, that by the heat thereof the oile may change, and draw into him ſelfe the faculty of the flowers which are infuſed: of this kinde are oile of roſes, chamomile, dill, lillies, of water lillies, violets, and others, as you may ſee in *Meſue*.

The third kinde is properly that of the Chimiſts, and is done by reſolution made after divers manners, and of this ſort there are divers admirable qualities of divers oleaginous juices, whether they be made by the ſunne or fire, or putrefaction, as we ſhall ſpeake in his place hereafter.

The manner of oiles by reſolution.

Wee uſe oiles when wee would have the vertue of the medicament to pierce deepe, or the ſubſtance of the medicines mingled with the oile to bee ſoft and gentle. Moreover, when wee prepare oiles that ſhould be of a cooling quality, the common oile of the unripe Olive is to be uſed: of that ſhould the oile of roſes be made.

Againe, when we would prepare oiles of heating qualities, ſuch as are *Oleum philoſophorum*, or of Tiles, ſweet and ripe oile is to be choſen.

CHAP. XXV.

Of Liniments.

A Liniment is an externall medicine of a meane conſiſtence, between an oile and an ointment, for it is thicker than an oile; for beſides oile it is compounded with butter, axungia, and ſuch like, which is the reaſon why a liniment is more efficacious in ripening and mitigating paine, than ſimple oile. The varieties of liniments is drawn from their effects, ſome coole, others heat, ſome humect, ſome ripen, others by compoſition are made for divers uſes. The matter whereof they are uſually made, is oile, axungia, ſewet, butter, all thoſe things which have an oily ſubſtance or conſiſtence, as *ſtyrax liquida*, turpentine, the mucilages of fenugreeke, marſh-mallowes, marrow, and other like. To theſe are ſometimes added powders of rootes, ſeedes, flowers, rindes, metals, but ſparingly, that the liniment may be of a liquid conſiſtence.

What a liniment is.

An example of a liniment that is good to attenuate, heat, and digeſt, is this that followeth.

℞. *ol. amygd. amar. lilior. an.* ℥ i. *axung. anat. gallin. an.* ℥ ß. *butyr. ſal. expert.* ℥ i. *mucag. ſem. alth. fœnugr. extract. in aq. hyſſop. an.* ʒ ß. *pulver. croci, ireos, an.* ℈ i. *fiat linimentum.*

This may be an example of a liniment to humect and mollifie.

℞. *ol. amygd. dulc.* ℥ ii. *axung. human.* ʒ ß. *mucag. ſemin. malv. extract. in aq. parietar.* ℥ ß. *fiat linimentum*: you may adde a little ſaffron. There bee many others like theſe which may be made for divers affects. They are eaſily applied to every part of the body, becauſe they are not ſo liquid as oiles: the reaſon is, they are more agreeable to any of the parts. If they be to enter into any crooked narrow paſſage, ſuch as the eare, they muſt be more liquid, and have more oile: if they be to ſticke on the part, they will admit of more axungia and ſewet.

They are deceived who thinke that the difference betweene liniments and ointments is, that there is no waxe in liniments as there is in unguents; for there be ſome unguents which admit not any waxe to bee added, as *ægyptiacum*, and all ſuch as are uſed in gangrenes, and all ſorts of putride ulcers; becauſe to theſe kinds of diſeaſes all fatty things, as oiles, fats, roſines, and waxe, are enemies. Therefore wee ſubſtitute in the place of them in *ægyptiacum*, hony and verdigreace; for of theſe it hath his conſiſtence, and his quality of cleanſing.

CHAP.

Chap. XXVI.

Of Ointments.

Oyntments & their differences.

OYntments are of a more ſolid conſiſtence than Liniments, and are therefore of more force. Their differences are partly taken from their effects; for ſome heate, others coole, ſome dry, and ſome humect, ſome cleanſe, ſome corroborate, ſome waſte dead fleſh, and others cicatrize, partly from the variety of colours, partly from the firſt invertors, as, *Album rhaſis, Deſiccativum rubrum*: partly from the number of the ſimple medicaments whereof they bee made, as, *Tetrapharmacum, Tripharmacum*, or *Nutritum*: partly from that medicament which is principall in the compoſition, hence are they called, *Unguentum de Lythargyro, de Minio, Diapompholigos*, and ſuch like. They are compounded of herbes, rootes, ſeedes, fruits, mettals, and parts of Beaſts; the juices and other liquid things being conſumed away by boyling, as we have ſaid in the Chapter of compound Oyles. Herbes, and the parts of them, if they be dry, muſt be powdred, and alſo mettals; but being greene, they are boyled and ſtrained forth, and the juice ſo preſſed is waſted by boyling. Gums and Roſins ſome are powdred, others being put to ſome convenient liquor are diſſolved by fire: So Waxe is diſſolved in the Oyle. In the compoſition of unguents this proportion is uſually obſerved, that for one ounce of powder, two ounces of Waxe, and eight of Oyle is added: notwithſtanding for that Waxe ſerveth onely to the conſiſtence of the oyntment, it is better to leave the quantity to the will of the Apothecary; but he may be more ſparing in adding Waxe to the oyntments in the Summer than in Winter: for the heate of Summer, drying them, addeth to the conſiſtence; by examples propounded, theſe common preceps will more plainly appeare.

Unguentum adſtringens.

℞. *Olei roſ.*℥iv. *pil. lepor. bol. armen. terræ ſigil. an.*ʒi. *bal. Gallar. an.*ʒß. *tritis terendis, & ſimul mixtis, addita cera quod ſufficit, fiat unguentum.* Here wee muſt obſerve, that there bee three waies of making Oyntments: The firſt is of thoſe which are made only by ſtirring or grinding in the Mortar without any fire, and ſo is made *Unguentum nutritum*. The ſecond is, when we diſſolve Waxe in Oyle, Fat, or ſome ſuch ſubſtance with fire: and being all diſſolved, wee mingle the powders according to the proportion we noted before. After which manner are made *Unguentum Aureum, Baſilicon, Diapompholigos, Deſiccativum rubrum, Enulatum.* The third ſort is, when we bruiſe herbes with a Peſtell, and mingle them with Axungy, boyling them together, and then ſtraining them, and the Oyntment is that which is ſtrained. Therefore let us proceed to explaine this by examples.

Unguentum nutritum.

℞. *Lythar. auri triti & loti* ℔ß. *olei roſ.*℔.i. *aceti roſ.*℥iv. *fiat Unguentum.* Firſt, wee put the Lytharge into the Mortar, powring in a little Oyle, and working it with a Peſtell, that it may grow thicke, then with the Oyle we put a little Vinegar, continually working, untill they mingle into one body, now and then betweene whiles adding ſometimes a little Oyle, ſometimes a little Vinegar, untill the whole bee brought to the conſiſtence of an Oyntment. If of an Oyntment of this kinde thou wouldſt make a blacke plaſter, by degrees conſume all the Vinegar, ſo ſhall the plaſter ſhine and grow blacke.

Unguentum aureum.

℞. *Ceræ citr.*℥vi. *olei boni* ℔.ii. *tereb.*℥ii. *reſin. & coloph. an.*℥iß. *olib. maſtich. an.*℥i. *croci*, ʒi. *fiat Unguentum.* Firſt, diſſolve the Waxe with a good part of the Oyle, then adde the Roſin and Colophony broken ſmall. Theſe being diſſolved, take the compoſition from the fire, and then adde the Turpentine; when the whole is ſomewhat cooled, adde the *Olibanum* and Maſticke being finely powdred, then the Saffron, which ſhall be macerated in the reſt of the Oyle.

Ung. Tetrapharmacum, ſeu Baſilicum.

Tetrapharmacon is ſo called, becauſe it is made of foure ſimple medicines, Waxe, Roſin, Pitch, Tallow, of each a like quantity, and ſo equally mixed.

℞. *Reſin. picis nigr. adip. vituli. & ceræ an.*℥ii.ß. *Olei veteris olivarum maturarum*, ℔iß. or if you would have it harder, ℔i. that oyntment alſo is called *Baſilicon*, the

Waxe being cut ſmall and diſſolved in Oyle, then adde the reſt of the things, which being diſſolved, thou ſhalt have the deſired oyntment.

Ung. Diapompholygos.

℞. *Olei roſ.*℥ix.*cer.alb.*℥iii.*ſucci ſolani hortenſis*, ℥iv. *Ceruſ.lot* ℥i. **Pompholygos**, *plumbi uſti & loti, olib.puri, an.*℥ß.*fiat Unguentum.* Diſſolve the Waxe in the Oyle with a gentle fire, then you ſhall take it from the fire, and adde to the reſt of the ingredients, working them together in a ſtone Mortar, powring on the juice by degrees, at leaſt ſo much of it as will incorporate.

Vng. deſiccativum rubrum.

℞. *Lap.calam.ter.ſig.an.*℥ii.*Litharg.auri, ceruſ.an.*ʒiß. *Camphor.* ʒß. *ceræ*, ℥iiß. *Olei roſat.viol.an.*℥iii.*fiat Unguentum.* Diſſolve the Waxe in the Oyle, then ſet it to coole, and worke in the powders with a ſpatter, and at laſt adde the Camphor diſſolved in a little Oyle of Roſes, or Roſewater.

Ung. Enulatum.

℞. *Rad.enul.campan.coct.cum aceto & contuſ.ut decet* ℔ß. *Axung.porci, olei commu. an.*℥iß.*argen.vivi extincti, & tereb.lot.an.*ʒi.*ſal.commu.pulverati*, ʒii. incorporate them according to art. The boyled rootes muſt be drawne through a Sieve, which being boyled by a gentle fire with the *Axungia*, muſt bee continually ſtirred, then put to the Salt with Oyle & Waxe: when you ſet it from the fire to coole, then adde the Quickſilver, being killed with a little *Axungia* and Turpentine.

Vng. album Rhaſis.

℞. *Olei roſat.* ℥ix. *ceruſ.alb.*℥iii.*cer.alb.*℥ii. make it thus: Let the Ceruſſe bee finely powdred, and put into the Oyle and Waxe whilſt it is hot, and ſo worke the whole together, untill they ſhall be brought into a body.

De Althæa.

℞. *Rad. Ath.*℔i.*ſemi.lini, fænugr.an.*℔ß.*Scillæ* ℥iii. *Olei com.*℔ii.*cer.*℔ß. *terebinth. gum.heder.galb.an.*℥i.*coloph & reſin.*℥iii. The rootes and ſeeds being bruiſed, are infuſed for three dayes in five pintes of water; boyle them untill three ounces be conſumed, and then draw forth the Mucilage, and boyle it with the Oile, then adde Waxe cut ſmall: theſe being taken from the fire, the *Galbanum* being diſſolved with Vinegar, & mingled with the Turpentine, muſt be added together with the Gumme *Hederæ*, Colophony, and Roſin.

Vng. Populeum.

℞. *Ocul.populi arb.*℔iß.*fol.papaveris nigr. Mandrag. hyoſcyami, lactucæ, ſempervivi parvi & magni, violæ nigræ, ſolani, umbilici veneris, ſeu cymbalar. bardanæ, an.*℥ß. (*Cordus, Fernelius, & Nicolaus ſingulorum* ℥iii.*præſcribunt*) *Adipis ſuilli recentis ſalis expertis*, ℔ii.*vini boni*, ℔i. *fiat Unguentum.* The Poplar buds and Violet leaves muſt be bruiſed and macerated in the *Axungia* for the ſpace of two moneths, that is, untill the reſt of the herbes be ready; for they cannot bee gathered before the Summer time, but the Poplar buds and Violets may be had in March. They muſt be bruiſed and mingled very well, and ſet in a warme place for eight dayes; then adde one pinte of ſtrong Vinegar, and boyle them till it be conſumed, which may bee perceived by caſting a little of it into the fire, then ſtraine it forth, and put up the Oyntment.

Vng. Apoſtolorum.

℞. *Tereb.cer.alb.reſ.an.*ʒxiv. *Opopanacis, floris, ſeu viridis æris* (*nam hic flos æris non propriè accipitur pro granulis, quæ ſcintillarum inſtar ab ære exiliunt dum à fabris ferrariis aqua tingitur: ſed pro viridi æris uſurpatur, cujus contra maligna ulcera notæ ſunt vires, contra quæ omninò id Unguentum eſt comparatum*) *an.*ʒii.*ammon.*℥xiv.*ariſtol.lon. thuris maſculi an.*ʒvi.*myrrhæ & galbani an.*ʒiii.*bdellii*, ʒvi. *Litharg.*ʒix. *olei*, ℔ii. *fiat Unguentum.* The Litharge is to be mingled with two ounces of Oyle for the ſpace of five houres, and with a gentle fire to be boyled untill it come to the conſiſtence of Honey, and be alwayes ſtirring, leſt it burne: being taken from the fire and warme, the Waxe and the Roſin, being diſſolved, with the reſt of the Oyle, muſt be added. Then put to it, when it is cooling, the Gummes diſſolved in Vinegar, boyled and incorporated with the Turpentine. Then the *Ariſtolochia*, Myrrhe, and Frankinſenſe are to be mingled, and laſt of all the Verdigreaſe, being in fine powder, and ſprinkled in: and ſo the unguent is made.

Comitiſſæ.

℞. *Cortic.median.caſtan. cortic.median.querc. cortic.median. gland. mirtil.equeſ.cortic. fabar. acinor.uvar. ſorbor. ſiccor. immatur.meſpillor.immaturor.rad.chelidon.folior. prunor. ſilveſt.an.*ʒiß. *Aquæ plantaginis*, ℔viii. *cer.nov.* ℥viiiß. *olei myrtillor.*℔iiß. Then theſe things which follow, being finely powdred, are to be ſprinkled in.

℞. *Pulveris corticis mediani caſtan. corticis mediani gland. cortic. median. arb. gland. id eſt, querc. gallar. an.*℥i. *Cineris oſſ. cruris bovis, myrtill. acinor. uvar. ſorbor. ſiccor. an.*℥ß.

Trochiſcorum de carabe, ℥ii. *fiat Unguentum.* First, make a decoction *corticis mediani arboris quercus, acini uvar. rad. chelid. meſpil. ſorbor. equiſ. ſeminis myrtil. folior. pruni ſylveſtris, cort. fabar. cortic. mediani gland. cortic. caſtan. & gallar.* in the Plantaine water for the ſpace of two houres, then ſtraine it, and divide the liquor into nine parts, waſhing the Waxe, diſſolved with the Oyle of Myrtils ſeven times; the liquor being all ſpent, and the Waxe and Oyle being melted, then inſperge the powders, *Cruris bovis, oſſium, cortic. median. querc. median. cortic. gland. caſtan. gallar. ſorbor. meſpil. ſeminum myrtil. acinor. uvar.* and at laſt the Trochiſces *carab.* after this manner ſhall you make this Oyntment.

Ung. pro ſtomacho. ℞. *Olei abſinth. maſtich. de ſpic. roſat. an.* ℥ß. *pulver. abſinth. roſ. major. menth. an.* ʒi. *Caryoph. cinam. maſtich. galang. an.* ʒi. Powder thoſe things which are to bee powdred, and with a ſufficient quantity of Waxe make a ſoft oyntment, wherewith let the ſtomacke be annointed one houre before meales continually.

Ung. ad morſus rubioſos, ex li. 1. Gal. de comp. ſec. genera. ℞. *Cer. alb* ℔ii. *ceruſ. litharg. auri, an.* ℔i. *myrrh. medull. cervi, an.* ʒii. *thuris,* ℥i. *olei,* ℔ß. Boyle the Litharge in the oyle to a meane conſiſtence, then adde to the Waxe & Ceruſſe, and when it will not ſticke to the fingers, take it from the fire, and put in the *Medulla*, when it beginneth to coole, the *Myrrha* and *Thus*, being finely powdred, muſt be caſt in by little and little, and the oyntment may be put up for uſe. The chops of the fundament, and remollient Peſſaries are likewiſe made of it, and it is very good againſt the bitings of madde Dogges, and the punctures of nerves and tendons, keeping wounds ſo that they doe not agglutinate.

3. De comp. med. ſec. gen. ℞. *Picis pinguis,* ℔i. *Opopanacis in aceto forti, oleo liliorum, & veteri porci axungia cocti,* ℥iii. *fiat Unguentum. Oleum ex ſinapi* is good againſt thoſe bitings of mad beaſts and punctured nerves: for it doth open wounds when they are cicatrized. Oyntments are uſed to overcome the contumacy of a ſtubborne evill by their firme and cloſe ſticking to, eſpecially if there ſhall need no medicine to goe further into the body.

CHAP. XXVII.

Of Cerats and Emplaſters.

What a Cerat is. *The differences.* Such affinity there is in the compoſition of a Cerat and Emplaſter, that oftentimes the one is taken for the other, as is uſually done in Oyntments and Liniments. A Cerat is a compoſition more ſolide and hard than an oyntment, and ſofter than a plaſter, having his name from Waxe, which taking away the fluidneſs of the oyle, bringeth him to his conſiſtence. The differences of Cerats are taken ſome from the parts by which they are called, as *Ceratum ſtomachicum*: ſome from the effects, as *Ceratum refrigerans Galeni*: Others from the ſimple medicaments which are the chiefe in the compoſition, as, *Ceratum Santalinum.* The proper matter of Cerats is, new Waxe & Oyles, being appropriated to the griefe of theſe, or thoſe parts; ſo that Liniments & Oyntments doe ſcarce differ from Cerats, if they admit of Waxe: for if oyntment of Roſes ſhould have Waxe added to it, it were no longer an oyntment, but a Cerat.

Cerats, which are made with Roſins, Gummes, and Metals, doe rather deſerve the names of Emplaſters than Cerats. And therefore *Ceratum ad Hernias*, we commonly call *Emplaſtrum contra Rupturam.* If that paine or inflammation do grieve any part, we make Cerats of plaſter, diſſolved with Oyle, leſt that the more hard and heavie conſiſtence of the Emplaſter ſhould be troubleſome to the part, and hinder perſpiration: and therefore laying aſide the compoſition of Cerats, let us ſpeake of Emplaſters.

Emplaſters. An Emplaſter is a compoſition which is made up of all kinde of medicines, eſpecially of fat and dry things, agreeing in one groſſe, viſcous, ſolid, and hard body ſticking to the fingers. The differences of Emplaſters are taken from thoſe things, which the variety of oyntments are taken from. Of thoſe things which goe into the compoſition of an Emplaſter, ſome are only uſed for their quality and faculty, as

Wine, Vinegar, Juices. Others to make the conſiſtence, as Litharge (which, according to *Galen*, is the proper matter of Emplaſters) Waxe, Oyle, and Roſin. Others be uſefull for both, as, Gums, Metals, parts of beaſts, Roſin, as Turpentine to digeſt, to cleanſe, and dry. Of Emplaſters, ſome are made by boyling, ſome are brought into a forme without boyling; thoſe which bee made without fire, doe ſodainly dry, nor are they viſcous: they are made with meale and powder, with ſome juice, or with ſome humid matter mingled with them. But plaſters of this kind may rather bee called hard oyntments, or cataplaſmes: for plaſters properly ſo called are boyled, ſome of them longer, ſome ſhorter, according to the nature of thoſe things which make to the compoſition of the Emplaſter: Therefore it will bee worth our labour to know what Emplaſters doe aske more, or which leſſe boyling. For roots, woods, leaves, ſtalkes, flowers, ſeeds, being dryed, and brought into powder, are to be added laſt, when the plaſter is boyled as it were, and taken from the fire, leſt the vertue of theſe things be loſt. But if greene things are to be uſed in a compoſition, they are to be boyled in ſome liquor, and being preſſed forth, that which is ſtrained to be mingled with the reſt of the compoſition; or if there be juice to be uſed, it is to be bruiſed and preſſed forth, which is ſo to be boyled with the other things, that nothing but the quality is to remaine with the mixture, as wee uſe to doe in *Empl. de Janua, ſeu Betonica, & Gratia Dei.* The ſame is to bee done with Mucilages, but that by their clammineſſe they do more reſiſt the fire. But there doth much of oyle and honey remaine in plaſters when they are made. Thoſe juices which are hardned by concretion, as, *Aloës, Hypocyſtis, Acacia*, when they are uſed in the compoſition of a plaſter, and be yet new, they muſt be macerated and diſſolved in ſome proper liquor, and then they are to bee boyled to the conſumption of that liquor. Gums, as, *Opopanax, Galbanum, Sagapænum, Ammoniacum*, muſt be diſſolved in Wine, Vinegar, or *Aqua vitæ*, then ſtrained and boyled to the conſumption of the liquor, aud then mixed with the reſt of the plaſter. And that they may have the exact quantity of Gums and Pitch, it is neceſſary that firſt they bee diſſolved, ſtrained, and boyled, becauſe of the ſtickes and ſordid matter which are mingled with them. You muſt have reſpect alſo to the liquor you uſe to diſſolve them in; for Vinegar of the beſt Wine doth more powerfully penetrate, than that which is of weake and bad Wine.

Other Gums, which are drier, are to be powdred, and are to bee mingled with plaſters laſt of all. Metals, as, *Æs uſtum, Chalcitis, Magnes, Bolus Armenus, Sulphur, Auripigmentum*, and others, which may bee brought to powder, muſt bee mingled laſt, unleſſe advice be given by long boyling to dull the fierce qualities of them. The like conſideration is to be had of Roſin, Pitch, and Turpentine, which muſt be put in after the Waxe, and may not be boyled but very gently; but the fats are mingled whilſt the other things are boyling. The Litharge is to be boyled with the oyle to a juſt conſiſtence, if wee would have the plaſter dry without biting. Ceruſſe may endure as long boyling, but then the plaſter ſhall not bee white, neither will the Litharge of ſilver make a plaſter with ſo good a colour as Litharge of gold. Moreover, this order muſt bee obſerved in boyling up of plaſters: the Litharge muſt bee boyled to his conſiſtence; juices or mucilages are to be boyled away, then adde the fats, then the dry Roſin, Waxe, Gums, Turpentine, and after them the powders: You ſhall know the plaſter is boyled enough by his conſiſtence, groſſe, hard, glutinous, and ſticking to the fingers, being cooled in the ayre, water, or upon a ſtone. Alſo you ſhall know it by his exact mixtion, if that all the things become one maſſe hard to be broken.

Signes of a plaſter perfectly boyled.

The quantity of things to be put into plaſters.

The quantity of things which are to be put into a plaſter can hardly be deſcribed, but an artificiall conjecture may be given, by conſidering the medicaments, which make the plaſter ſtiffe, and of a conſiſtence, and the juſt hardneſſe and ſoftneſſe they make being boyled. Waxe is not put into ſuch plaſters wherein is *Labdanum*; for that is in ſtead of Waxe. For if there ſhall be in the compoſition of a plaſter ſome emplaſticke medicaments, the Waxe ſhall be the leſſe: Contrariwiſe, if they ſhall bee almoſt all liquid things, the Waxe ſhall be increaſed ſo much as ſhall be neceſſary for the conſiſtence of the plaſter. The quantity of the Waxe alſo muſt bee altered according to the time, or the aire; therefore it is fit to leave this to the art and judgement of the Apothecarie. Emplaſters are ſometimes made of ointments by the addition of waxe, or dry roſine, or ſome other hard or ſolide matter. Some would that a handfull of medicaments poudred, ſhould be mingled with one ounce, or an ounce and an halfe of oile, or ſome ſuch liquor, but for this thing nothing can certainely bee determined: Onely in plaſters deſcribed by the Antients there muſt bee great care had, wherein hee muſt bee very well verſed, who will not erre in the deſcribing the doſe of them; and therefore wee will here give you the more common formes of plaſters.

Empl. de Vigo with Mercury.

℞. *ol. chamæm. aneth. de ſpica, liliacei, an.* ℥ ii. *ol. de croco,* ℥ i. *pingued. porci,* ℔ i. *pingued. vitul.* ℔ ß. *euphorb.* ʒ v. *thuris,* ʒ x. *ol. lauri,* ℥ i ß. *ranas viv.* nu. vi. *pingued. viper. vel ejus loco human.* ℥ ii ß. *lumbricor. lotor. in vino,* ℥ iii ß. *ſucci ebuli, enul. ana,* ℥ ii. *ſchœnanthi, ſtæchados, matricar. an.* m ii. *vini oderiferi,* ℔ ii. *litharg. auri,* ℔ i. *terebinth. claræ,* ℥ ii. *ſtyracis liquid.* ℥ i ß. *argenti vivi extincti,* ſo much as the preſent occaſion ſhall require, and the ſicke ſhall be able to beare, and make up the plaiſter. To one pound of the plaſter they doe commonly adde foure ounces of quick-ſilver, yet for the moſt part they doe encreaſe the doſe, as they deſire the plaſter ſhould be ſtronger: the wormes muſt be waſhed with faire water, and then with a little wine to cleanſe them from their earthie filth, of which they are full, and ſo the frogs are to be waſht and macerated in wine, and ſo boiled together to the conſumption of a third part; then the ſquinanth muſt bee bruiſed, the feverfew and the ſtæchas cut ſmall, and they being added, to be boiled to the conſumption of one pint, and being boiled ſufficiently, the decoction being cooled ſhall bee ſtrained and kept; and the Letharge is to be infuſed for twelve houres in the oile of chamomile, dill, lillies, ſaffron, and the axungies above ſpoken of. Then boile them all with a gentle fire, by and by taking it from the fire, and adde one quart of the decoction above ſpoken of, then ſet it to the fire againe that the decoction may bee conſumed, and then by degrees adde to the reſt of the decoction: the oile of ſpike ſhall bee reſerved unto the laſt, which may give the plaſter a good ſmell. Then are added the juices of walwort and enula, which muſt bee boiled untill they bee waſted away. Afterwards it being taken from the fire, to the compoſition is added the frankincenſe and euphorbium, and white wax as much as ſhall ſuffice. When the whole maſſe ſhall coole, then at laſt is mingled the quick-ſilver extinct, turpentine, oile of bitter almonds, baies, ſpike, of line, ſtyrax and axungia, being continually ſtirred, and it ſhall bee made up upon a ſtone into rolls. Unleſſe the quick-ſilver be well extinguiſhed, it will runne all into one place, and unleſſe you tarrie untill the compoſition coole, it will vapour away in fume.

Ceratum œſipi ex Philagrio.

℞. *croci,* ʒ ii. *bdellii, maſtich. ammon. ſtyrac. liquid. an.* ℥ ß. *ceræ alb.* ℔ ß. *tereb.* ℥ vi. *medul. cruris vaccæ, adipis anſerini, an.* ℥ i. *æſypi, vel ſi deſit, axung. gallin.* ℥ ix. *olei nard. quantum ſatis ad magdaleones formandos, expreſſionis ſcillæ,* ℥ i ß. *olibani, ſevi vitul.* ℥ i. The *æſypus, ſepum, adeps, medulla, cera,* are to bee diſſolved together; when they coole, adde the *ammoniacum* diſſolved in the decoction of fænugreeke and chamomile, halfe an ounce, and ſo much juice of ſquils, then put to the ſtyrax and turpentine, ſtirring them continually; then adde the *bdellium, olibanum,* maſtich, aloes, brought into fine powder, and when they are perfectly incorporated into a maſſe, let them bee made up with *oleum nardinum* into rolls.

De gratia Dei.

♃. *terebinth.* ℔ ß. *reſin.* ℔ i. *cer. alb.* ℥ iv. *maſtich.* ℥ i. *fol. verben. betonic. pimpinel. an.* m i. The herbes being greene, the tops are to bee cut and bruiſed in a ſtone mortar, and boiled in red wine to the conſumption of one third part. To the ſtrained liquor adde waxe cut into ſmall pieces, and being diſſolved by the fire; the liquor being conſumed put to the roſine, when it ſhall coole adde the Maſtick powdred, working it with your hands, by which it may bee incorporated with the reſt of the things.

De Janua ſeu de Betonica.

℞. *ſucci beton. plantag. apii, an.* ℔ i. *ceræ, picis, reſin. tereb. an.* ℔ ß. *fiat empl.* the juices are to bee mingled with the waxe being diſſolved, and boiling them untill three parts be conſumed, adde the roſine and pitch, which being diſſolved and hot, muſt be ſtrained, and then adde the Turpentine, and make up the plaſter.

℞.

Emplaſtrum oxycroceum.

♃. *croci, picis com.* (or rather *picis navalis*, becauſe this emplaſter is uſed to diſcuſſe and draw forth the matter which cauſeth the paine of the joints) *coloph. ceræ, an.* ℥ ii. *tereb. galb. ammon. thuris, myrrhæ, maſtich. an.* ʒ v ß. The *cera, pix*, and *colophonia* are by little and little to bee diſſolved, to which adde the gummes diſſolved according to art, and mingled with the terebinth; and taking it from the fire adde the *thus, myrrha*, and at laſt the *crocus* in fine powder, and then make it up into rowles with oyle of wormes.

De ceruſa.

♃. *ol. com.* ℔ ii. *ceruſ. ſubtiliſ.* ℔ i. boile them together with a gentle fire, ſtirring them continually untill they come to the body of an emplaſter: if you would have the plaſter whiter, take but ℥ ix. of the oile.

Tripharmacum, ſeu nigrum.

℞. *lytharg. triti, acet. fortiſ. an.* ℔ ß. *ol. antiq.* ℔ i. *fiat emplaſtrum*: let the oile bee mingled with the litharge for the ſpace of twelve houres, then boile them untill they come to a good conſiſtence, putting in the vinegar by little and little; but you ſhall not take it from the fire untill the vinegar be quite waſted away.

Diapalma, ſeu diachalciteos.

♃. *ol. vet.* ℔ iii. *axung. vet. ſine ſale*, ℔ ii. *lytharg. trit.* ℔ iii. *vitriol.* ℥ iv. let the oyle bee mingled with the lytharge for the ſpace of twelve houres, and boile them to a good conſiſtence, then adde to the axungia, ſtirring them continually with a ſpatter made of the palme tree, reed, or willow, and being ſufficiently boiled, take it from the fire, and adde the vitrioll in fine powder.

Contra rupturam.

℞. *picis naval. aloes, an.* ℥ iii. *lytharg. ceræ, coloph. galban. ammoniac. an.* ℥ ii. *viſci querni*, ℥ vi. *gypſi uſt. utriuſque ariſtoloch. ana*, ℥ iv. *myrrhæ, thuris, an.* ℥ vi. *tereb.* ℥ ii. *pulveris vermium terreſtrium, gallar. utriuſq. conſolid. bol. arm. an.* ℥ iv. *ſang. humani*, ℔ i. *fiat emplaſt.* If you would have it of a very good conſiſtence, you may add of the oile of myrtills or maſtich, ℔ ß. you ſhall make it thus: Take the skinne of a Ramme cut in pieces, and boyle it in an hundred pints of water and vinegar untill it come to a glew or ſtiffe gelly, in which you ſhall diſſolve the *viſc. quer.* then adde the pitch and waxe broken into ſmall pieces, and if you will you may adde the oile with them, afterwards the *galban.* and *ammoniac.* diſſolved in vinegar, being mingled with the terebinth, may be added. Then adde the litharge, *gypſum, bol. ariſtoloch. conſolida, vermes, & ſang. human.* At laſt the myrrhe, *thus, colophon*, and *aloe*, ſtirring them continually; and that they may bee the better mingled, worke the plaſter with a hot peſtell in a mortar.

De mucaginibus.

♃. *mucag. ſem. lini, rad. alth. fœnug. median. corticis ulmi, an.* ℥ iv. *olei liliacei, cham. aneth. an.* ℥ i ß. *ammon. opopanac. ſagap. ana* ℥ ß. *croci*, ʒ ii. *ceræ nov.* ℔ ß. *tereb.* ℥ ß. *fiat empl.* *Fernelius* hath ℥ xx. of wax: the wax being cut ſmall muſt be mingled with the oiles and the mucilages, ſtirring them continually with a wooden ſpatter till the liquor be conſumed. Then the gummes diſſolved and mingled with the terebinthina muſt be added, and laſt of all the ſaffron finely poudered.

De minio.

♃. *ol. roſ. myrtil. ung. populeon, ana*, ℥ iv. *pinguedinis gallin.* ℥ ii. *ſebi arietis caſtrati, ſepi vaccini, an.* ℥ vi. *pingued. porci*, ℥ x. *lytharg. auri, argenti, an.* ℥ iii. *ceruſ.* ℥ iv. *minii*, ℥ iii. *tereb.* ℥ iv. *ceræ, q. ſ. fiat emplaſtrum vel ceratum molle.* The *lithargiros, ceruſa*, and *minium* are to be brought into fine powder, ſeverally being ſprinkled with a little roſe water, leſt the fineſt of it ſhould flye away; theſe being mingled with the oile of roſes and myrtles, with a gentle fire may bee boiled untill they come to the conſiſtence of hony; then adde the axungia's, and boile them till the whole grow black, after adde the ſebum, and that being diſſolved take it from the fire, and then adde the *unguentum populeon*, and ſome waxe if there be need, and ſo bring it to the forme of a plaſter.

Diachylon magnum.

℞. *litharg. puri pul.* ℥ xii. *ol. irin. chamæm. aneth. an.* ℥ viii. *mucag. ſem. lini, fœnug. rad. alth. ficuum ping. uvar. paſſar. ſucci ireos, ſcillæ, æſipi, icthyocollæ, an.* ʒ xii ß. *tereb.* ℥ iii. *reſ. pini, ceræ flavæ, an.* ℥ ii. *fiat emplaſtrum*: The litharge is to be mingled with the oyle before it be ſet to the fire, then by a gentle fire it is to be boiled to a juſt conſiſtence; after the mucilage by degrees muſt bee put in, which being conſumed the juices muſt bee added and the icthyocolla, and they being waſted too, then put to the waxe and roſine, then taking the whole from the fire, add the œſipus and terebinthina.

The uſe of plaſters.

We uſe plaſters when wee would have the remedy ſticke longer and firmer to the part, and would not have the ſtrength of the medicament to flye away or exhale too ſuddenly.

CHAP. XXVIII.

Of Cataplaſmes and Pultiſſes.

The matter of cataplaſmes.

Cataplaſmes are not much unlike to emplaſters leſſe properly ſo called, for they may be ſpred upon linnen cloaths and ſtoupes like them, and ſo applied to the grieved parts. They are compoſed of roots, leaves, fruits, flowers, ſeeds, herbes, juices, oiles, fats, marrowes, meales, roſines. Of theſe ſome muſt bee boiled, others crude. The boiled are made of herbes boiled tender, and ſo drawne through an haire ſearſe, adding oiles and axungia's thereto. The crude are made of herbes beaten, or their juices mixed with oile and flower, or other powders appropriate to the part or diſeaſe, as the Phyſitian ſhall thinke fit. The quantity of medicines entring theſe compoſitions can ſcarce be defined, for that they muſt be varied as we would have the compoſition of a ſofter or harder body. Verily they ought to be more groſſe and denſe when as we deſire to ripen any thing, but more ſoft and liquid when wee endeavour to diſcuſſe.

Their uſe.

We uſe cataplaſmes to aſſwage paine, digeſt, diſcuſſe and reſolve unnaturall tumors and flatulencies. They ought to be moderately hot and of ſubtle parts, ſo to attract and draw forth; yet their uſe is ſuſpected the body being not yet purged, for thus they draw downe more matter into the affected part. Neither muſt wee uſe theſe when as the matter that is to be diſcuſſed is more groſſe and earthy, for thus the ſubtler parts will be onely diſcuſſed, and the groſſe remaine impact in the part unleſſe your cataplaſme be made of an equall mixture of things, not only diſcuſſing, but alſo emollient, as it is largely handled by *Galen.*

Lib. 2. ad glauc. ubi de ſchirrho.

An anodine cataplaſme

A ripening cataplaſme.

A diſcuſsing caplaſme.

How pultiſſes differ from caplaſmes.

This ſhall be largely illuſtrated by examples. As, ℞. *medul. panis,* ℔ ß. *decoquantur in lacte pingui, adde olei chamæm.* ℥ ß. *axung. galin.* ℥ i. *fiat cataplaſma.* Or, ℞. *rad. alth.* ℥ iii. *fol. malv. ſenecionis, an.* m i. *ſem. lini, fænug. an.* ʒ ii. *ficus, ping.* nu. vi. *decoquantar in aqua, & per ſetaceum tranſmittantur, addendo olei lilior.* ℥ i. *far. hord.* ℥ ii. *axung. porcin.* ℥ i ß. *fiat cataplaſma.* Or, ℞. *far. fab. & orob. an.* ℥ ii. *pulv. chamæm. & melil. an.* ʒ iii. *ol. irin. & amygd. amar. an.* ℥ i. *ſucci rut.* ℥ ß. *fiat cataplaſma.* Pultiſſes differ not from cataplaſmes, but that they uſually conſiſt of meales boiled in oile, water, hony, or axungia. Pultiſſes for the ripening of tumours are made of the floure of barly, wheat, and milke, eſpecially in the affects of the entralles; or elſe to dry and binde, of the meale of rice, lentiles, or *Orobus* with vinegar; or to cleanſe, and they are made of hony, the floure of beanes and lupines, adding thereto ſome old oile, or any other oile of hot quality, and ſo make a diſcuſſing pultis. Alſo anodine pultiſſes may bee made with milke; as thus for example, ℞. *farin. triticeæ,* ʒ ii. *mica panis puriſsimi,* ℥ iii. *decoquantur in lacte, & fiat pulticula.*

A ripening cataplaſme.

℞. *farin. hordei & fab. an.* ℥ ii. *far. orob.* ℥ iii. *decoquantur in hydromelete, addendo mellis* quart. i. *olei amyg. amar.* ℥ ii. *fiat pulticula.* Wee uſe pultiſſes for the ſame purpoſe as wee doe cataplaſmes, to the affects both of the internall and externall parts. Wee ſometimes uſe them for the killing of wormes, and ſuch are made of the meale of lupines boiled in vinegar, with an Oxes gall, or in a decoction of Worme-wood, and other ſuch like bitter things.

CHAP. XXIX.

Of Fomentations.

A *Fotus* or fomentation is an evaporation or hot lotion, chiefly uſed to mollifie, relaxe and aſſwage paine, conſiſting of medicines having theſe faculties. A fomentation commonly uſeth to be moiſt, being uſually made of the ſame things as embrocations, to wit, of roots, ſeeds, flowers, boiled in water or wine. The roots here uſed are commonly of mallowes, marſh-mallowes, and lillies. The ſeedes are of mallowes, marſh-mallowes, parſly, ſmallage, line, fenugreeke. Flowers are of chamomile, melilote, figges, raiſons, and the like: all which are to bee boiled in wine, water, or lye, to the conſumption of the third part or the halfe: as,

℞. *Rad. alth. & lilil. an.* ℥ii. *ſem. lini, fœnug. cumin. an.* ʒiii. *flo. cham. melil. & aneth. an* p.i. *ſummit. orig.* m. ß. *bulliant in æquis partibus aquæ & vini, aut in duabus partibus aquæ, & una vini, aut in Lixivio cineris ſarmentorum, ad tertiæ partis conſumptionem, fiat fotus.* In imitation hereof you may eaſily deſcribe other fomentations, as occaſion and neceſſity ſhall require.

Their uſe. We uſe fomentations before we apply cataplaſmes, oyntments or plaſters to the part, that ſo we may open the breathing places or pores of the skin, relaxe the parts, attenuate the humour, that thus the way may be the more open to the following medicines. The body being firſt purged, fomentations may be uſed to what parts you pleaſe. They may be applyed with a female ſpunge, for it is gentler and ſofter than the male; with felt, woollen clothes, or the like dipped in the warme decoction wrung out, and often renued; otherwiſe, you may fill a Swines bladder halfe full (eſpecially in paines of the ſides) of the decoction, or elſe a ſtone bottle, ſo to keep hot the longer; yet ſo, that the bottle bee wrapped in cotton, wooll, or the like ſoft thing, that ſo it may not by the hardneſſe and roughneſſe offend the part, according to *Hippocrates*. 2. *De victu in acutis.*

CHAP. XXX.

Of Embrocations.

What an Embrocation is. AN *Embroche*, or Embrocation is a watering, when as from on high wee (as it were) ſhowre downe ſome moiſture upon any part. This kinde of remedy is chiefly uſed in the parts of the head, and it is uſed to the coronall ſuture, for that the skull is more thin in that part, ſo that by the *ſpiracula* or breathing places of this ſuture, more open than thoſe of the other ſutures, the force of the medicine may more eaſily penetrate unto the *Meninges*, or membranes of the braine. The matter of Embrocations is roots, leaves, flowers, ſeeds, fruits, and other things, according to the intention and will of the Phyſitian. They are boyled in water and wine, to the halfe or third part. Embrocations may alſo be made of Lye or Brine againſt the cold and humide affects of the braine. Sometimes of oyle and vinegar, otherwhiles of oyle onely. ℞. *fol. plantag. & ſolan. an.* m. i. *ſem. portul. & cucurb. an.* ʒii. *myrtil.* ʒi. *flor. nymph. & roſ. an.* p. ß. *fiat decoct. ad* ℔i. *cum aceti* ℥ii. *ſi altè ſubeundum ſit, ex qua irrigetur pars inflammata.* In affects of the braine, when we would repercuſſe, we often and with good ſucceſſe uſe oyle of Roſes, with a fourth part of vinegar.

Their uſe. We uſe Embrocations, that together with the ayre drawne into the body by the *Diaſtole* of the arteries, the ſubtler part of the humour may penetrate, and ſo coole the inflamed part: for the chiefe uſe of embrocations is in hot affects. Alſo wee uſe embrocations, when as for feare of an hæmorrhagie, or the flying aſunder of a broken or diſlocated member, we dare not looſe the bandages wherewith the member is bound. For then wee drop downe ſome decoction or oyle from high upon the bandages, that by theſe the force of the medicine may enter into the affected member.

CHAP. XXXI.

Of Epithemes.

What an Epitheme is.

Epithema, or an Epitheme, is a compoſition uſed in the diſeaſes of the parts of the lower and middle belly, like to a fomentation, and not much unlike an embrocation. They are made of waters, juices, and powders, by means whereof they are uſed to the heart, cheſt, liver, and other parts. Wine is added to them for the more or leſſe penetration, as the condition of the hot or cold affect ſhall ſeeme to require; for if you deſire to heate, more wine muſt bee added, as in ſwouning by the clotting of bloud, by the corruption of ſeed, by drinking ſome cold poyſon: the contrary is to be done in a fainting by diſſipation of the ſpirits by feaveriſh heates, alſo vinegar may bee added. The matter of medicines proper to the entrailes is formerly deſcribed, yet we commonly uſe the *ſpecies* of electuaries, as the *ſpecies elect. triaſantali* the liver being affected, and Diamargariton in affects of the heart. The proportion of the juices or liquors to the powders, uſes to be this, to every pinte of them ℥i. or ℥i ß. of theſe, of wine or elſe of vinegar ℥i. You may gather this by the following example.

In the ſixth Chapter.

A cordiall Epitheme.

℞. *aqu. roſ. bugl. borag. an.* ℥iii. *ſucci ſcabioſ.* ℥ii. *pul. elect. diamarg. frigid.* ʒii. *cort. citri ſicci* ʒi. *coral. raſ. ebor. an.* ʒß. *ſem. citri & card. ben. an.* ʒiiß. *croci & moſchi an. gra.* 5. *addendo vini albi* ℥ii. *fiat Epithema pro corde.*

Their uſe.

Epithemes are profitably applyed in hecticke and burning feavers to the liver, heart, and cheſt, if ſo be that they be rather applyed to the region of the lungs, than of the heart; for the heate of the lungs being by this meanes tempered, the drawn in ayre becomes leſſe hot in peſtilent and drying feavers. They are prepared of humecting, refrigerating, and cordiall things, ſo to temper the heate, and recreate the vitall faculty. Sometimes alſo we uſe Epithemes to ſtrengthen the heart, and drive there-hence venenate exhalations, lifted or raiſed up from any part which is gangrenate or ſphacelate. Some cotton, or the like, ſteeped or moiſtened with ſuch liquors and powders warmed, is now and then to be applyed to the affected entraile; this kinde of remedy, as alſo all other topick and particular medicines, ought not to be uſed, unleſſe you have firſt premiſed generall things.

CHAP. XXXII.

Of potentiall Cauteries.

The uſe of potentiall cauteries.

That kinde of Pyroticke, which is termed a Potentiall Cautery, burnes, and cauſeth an eſchar. The uſe of theſe kindes of Cauteries is to make evacuation, derivation, revulſion, or attraction of the humours by thoſe parts whereto they are applyed. Wherefore they are often and with good ſucceſſe uſed in the punctures and bites of venemous beaſts, in a venenous, as alſo in a peſtilent *Bubo* and Carbuncle, unleſſe the inflammation be great: for the fire doth not only open the part, but alſo retunds the force of the poyſon, cals forth and plentifully evacuates the conjunct matter. Alſo they are good in phlegmaticke and contumacious tumours; for by their heate they take away the force and endeavours of our weake heate. Alſo they are profitably applyed to ſtanch bleeding, to eate or waſte the ſuperfluous fleſh of ulcers and wens, to bring downe the callous lips of ulcers, and other things too long here to inſiſt upon.

The matter of them.

The materials of theſe Cauteries are Oake aſhes, Pot aſhes, the aſhes of Tartar, of Tithymals or ſpurges, the Figge-tree, the ſtalkes of Colewort and Beanes, cuttings of Vines, as alſo *ſal ammoniacum, alkali, axungia vitri, ſal nitrum,* Romane Vitrioll, and the like; for of theſe things there is made a ſalt, which by its heate is cauſticke and eſcharoticke, like to an hot iron and burning coale: Therefore it violently looſes the continuity by eating into the skinne, together with the fleſh there-under. I have thought good here to give you divers formes of them.

The formes of them. Take of unquencht Lime extinguiſhed in a bowle of Barbers Lye three pounds: When the Lye is ſettled, let it be ſtrained, and into the ſtraining put of *Axungia vitri,* or Sandiver, calcined Argol, of each two pounds, of *Sal nitrum & ammoniacum,* of each foure ounces, theſe things muſt be beaten into a groſſe powder, then muſt they be boyled over the fire, and after the boyling let them remaine in the Lye for foure and twenty houres ſpace, being often ſtirred about, and then ſtrained through a thicke and double linnen cloth, leſt any of the earthy droſſe get thorow together with the liquor. This ſtrained liquor, which is as cleare as water, they call *Capitellum,* and they put it in a braſen Baſon, ſuch as Barbers uſe, and ſo ſet it upon the fire, and as ſoone as it boyles, they keep it with continuall ſtirring, leſt the ſalt ſhould adhere to the Baſon; the *Capitellum* being halfe boyled away, they put in two ounces of powdred vitrioll, ſo to haſten the falling of the eſchar, and ſo they keep the baſon over the fire untill all the liquor be almoſt waſted away. Then they cut into peeces the ſalt or that earthy matter, which remains after the boyling away of the *Capitellum,* & with a knife or hot iron ſpatula forme them into cauteries of ſuch figure and magnitude as they thinke fitting, and ſo they lay them up, or keep them for uſe in a violl or glaſſe cloſly ſtopped, that the ayre get not in: Or,

Take a bundle or ſufficient quantity of Beane ſtalkes or huskes, of Colewort ſtalks two little bundles, of cuttings of Vines foure bundles, burn them all to aſhes, which put into a veſſell of river water, ſo let them infuſe for a dayes ſpace, being ſtirred ever now and then; to this adde two pounds of unquencht lime, of *Axungia vitri* halfe a pound, of calcined Tartar two pounds, of *Sal niter* foure ounces, infuſe all theſe, being made into powder, in the foreſaid Lye for two or three dayes ſpace, often ſtirring it, then ſtraine the *Capitellum* or liquor through a thicke cloth untill it become cleare. Put it into a baſon, and ſet it over the fire, and when as the moiſture is almoſt wholly ſpent, let two or three ounces of vitrioll be added, when the moiſture is ſufficiently evaporated, make cauteries of that which remaines, after the formerly mentioned manner.

Take of the aſhes of ſound, knotty, old Oake as much as you pleaſe, make thereof a Lye; powre this Lye againe upon other freſh aſhes of the ſame wood, let this bee done three or foure times, then quench ſome lime in this Lye, & of theſe two make a *Capitellum,* whereof you may make moſt approved cauteries. For ſuch aſhes are hot in the fourth degree; and in like ſort the ſtones, whereof the lime by burning becomes fiery and hot to the fourth degree: Verily, I have made cauteries of Oake aſhes only, which have wrought quickly and powerfully. The *Capitellum* or Lye is thought ſufficiently ſtrong, if that an Egge will ſwimme therein without ſinking. The ſigne of good *Capitellum.*

Or, Take of the aſhes of Bean ſtalkes three pounds, of unquencht lime, Argoll, of the aſhes of Oake wood, being all well burnt, of each two pounds. Let them for two dayes ſpace be infuſed in a veſſell full of Lye made of the aſhes of Oake wood, and be often ſtirred up and downe. Let this Lye then be put into another veſſell, having many holes in the bottome thereof, covered with ſtrums or ſtraw pipes, that the *Capitellum* flowing through theſe ſtrait paſſages may become more cleare. Let it be put twice or thrice upon the aſhes, that ſo it may the better extract the heate and cauſticke quality of the aſhes. Then putting it into a Barbers baſon, ſet it over the fire, and when it ſhall begin to grow thicke, the fire muſt be increaſed, and cauteries made of this concreating matter.

The faculty of the ſilken Cautery. The following cauteries are the beſt that ever I made tryall of, as thoſe that applyed to the arme in the bigneſſe of a Peaſe, in the ſpace of halfe an houre without paine, eſpecially if the part of it ſelfe be painleſſe and free from inflammation, eate into the skinne and fleſh even to the bone, and make an ulcer of the bigneſſe of ones fingers end, and they leave an eſchar ſo moyſt and humide, that within foure or five dayes ſpace it will fall away of it ſelfe without any ſcarification. I have thought good to call theſe cauteries Silken or Velvet ones, not onely for that they are like Silke, gentle and without paine, but chiefly becauſe I obtained the deſcription of them of a certaine Chymiſt, who kept it as a great ſecret, for ſome Velvet and much entreaty: Their deſcription is this,

The cauſe of the name.

Their deſcription.

Take of the aſhes of Beane ſtalkes, of the aſhes of Oake wood well burnt, of each three pounds, let them bee infuſed in a pretty quantity of river water, and bee often ſtirred up and down, then adde thereto of unquencht lime foure pounds, which being quencht, ſtirre it now and then together for two daies ſpace, that the *Capitellum* may become the ſtronger, then ſtraine it through a thick & ſtrong linnen cloth, & thus ſtrained, put it three or foure times upon the aſhes, that ſo it may draw more of the cauſticke faculties from them, then boyle it in a Barbers baſon, or elſe an earthen one well leaded, upon a good Char-cole fire, untill it become thicke. But a great part of the ſecret or art conſiſts in the manner and limit of this boyling; for this *Capitellum* becomming thicke and concreating into ſalt, muſt not bee kept ſo long upon the fire, untill all the moyſture ſhall bee vaniſhed and ſpent by the heate thereof: for thus alſo the force of the foreſaid medicines, which alſo conſiſts in a ſpirituous ſubſtance, will bee much diſſipated and weakened; therefore before it be come to extreme drineſſe, it ſhall be taken off from the fire, to wit, when as yet there ſhall ſome thicke moyſture remaine, which may not hinder the cauteries from being made up into a forme. The made up cauteries ſhall bee put up into a glaſſe moſt cloſely luted up or ſtopped, that the ayre may not diſſolve them, and ſo they ſhall be laid up and kept in a dry place. Now, becauſe the powder of Mercury is neere to cauteries in the effects and faculty thereof, which therefore is termed *Pulvis Angelicus* for the excellency; therefore I have thought good to give you the deſcription thereof, which is thus:

The deſcription of Mercury, or Angelicall powder.

℞. *Auripigmenti citrini, floris æris, an.* ℥ii. *ſalis nitri,* ℔ i ß. *alumin. rochæ,* ℔ii. *vitrioli rom.* ℔iii. Let them all bee powdred, and put into a Retort, having a large receiver well luted put thereto. Then ſet the Retort over a Fornace, and let the diſtillation be made firſt with a gentle fire, then increaſed by little and little, ſo that the receiver may waxe a little reddiſh.

℞. *Argenti vivi,* ℔ß. *aquæ fortis,* ℔i. *ponantur in phiala, & fiat pulvis, ut ſequitur.*

Take a large earthen pot, whereinto put the violl or bolt head wherein the *Argentum vivum* and *Aqua fortis* are contained, ſetting it in aſhes up to the necke thereof, then ſet the pot over a fornace, or upon hot coales, ſo that it may boyle and evapourate away the *Aqua fortis*: neither in the *interim* will the glaſſe bee in any danger of breaking, when all the water is vaniſhed away, which you may know is done when as it leaves ſmoaking; ſuffer it to become cold, then take it forth of the aſhes, and you ſhall finde calcined Mercury in the bottome, of the colour of red Lead, ſeparated from the white, yellow or blacke excrement; for the white that concretes in the toppe is called Sublimate, which if it ſhould remaine with the calcined Mercury, would make it more painfull in the operation. Wherefore ſeparating this calcined Mercury, you ſhall make it into powder, and put it in a braſſe veſſell upon ſome coales, ſtirring or turning it with a *ſpatula* for the ſpace of an houre or two: for thus it will loſe a great part of the acrimony and biting, whence it will become leſſe painfull in the operation.

Chap. XXXIII.

Of Veſicatories.

What veſicatorie and rubrifiing medicines are.

VEſicatorie and rubrifying ointments, cataplaſmes, or plaſters are made of acride medicines, which have power to draw forth to the ſuperficies of the body ſuch humours as lye deepe, by exulcerating the skin and cauſing bliſters. Their matter is the ſame with ſepticke medicines, as *ſinapi, anacardus, cantharides, euphorb. radices ſcillæ, bryon.* and the like, which with hony, turpentine, leaven, gum, or roſine, may be made into cataplaſmes, ointments, or plaſters; therefore the compoſure of veſicatories, or rather their conſiſtence differs not from that of hard or ſoft unguents. Therefore I will give you one example or deſcription of them, which is thus.

The deſcription of a veſicatory.

℞. *cantharid. euphorbii, ſinapi, an.* ʒ ß. *mellis anacardini,* ʒ i. *modico aceti, & fermenti quod ſit ſatis excipiantur, & fiat veſicatorium.* Some of the antients thinke it better to make up theſe medicines with water rather than with vinegar, becauſe experience teacheth that vinegar abates the ſtrength of muſtard. Wee uſe this kinde of medicine in long diſeaſes, when as wee cannot any thing prevaile with other remedies; eſpecially in the head-ache, megrime, epilepſie, *ſciatica*, gout, the bites and punctures of venemous creatures, peſtilent carbuncles, and other inveterate and contumacious diſeaſes.

Their uſe.

Alſo we uſe them when as wee would reſtore life and ſtrength to a dead or decayed part, for thus they are drawne backe together with the heat; for which purpoſe wee muſt make choice of more gentle veſicatories, as ſuch which onely rubrifie, ſo that the part may onely become red, and not be burnt: the part muſt firſt be ſtrongly rubbed, that the decaied and dull heat may bee rowzed and ſtirred up, the pores of the skin more opened, that the force of the medicine may enter the deeper into the body.

Chap. XXXIV.

Of Collyria.

What a *collyrium* is.

A *Collyrium* is a medicine proper for the eyes, made of powder finely levigated and ground into the forme of *Alcohol*, as the Arabians and our Alchymiſts terme it: yet the word in a more generall acception is uſed for any liquide medicine, made with liquors and powders, and applied or uſed to any part. Wherefore *collyria* are of three kindes, ſome are moiſt or liquid, which are properly called *collyria*; others dry, which are of the ſame conſiſtence with Trochiſces; others have the conſiſtence of hony, or a liniment. The liquid ſerve for the greater and leſſer corners of the eyes; thoſe of the conſiſtence of hony are meet for the apple of the eye; but the dry are to be made into powder, and ſo blowne into the eyes: alſo ſometimes they are to be diſſolved in ſome juice, or other convenient liquor, that ſo they may be made into moiſt *collyria.*

The differences of them.

Their uſes.

Therefore *collyria* have divers uſes, and are applied to ſeverall parts according to the intention and counſell of the Phyſitian: for liquid *collyria* put into the corners of the eyes doe more readily mitigate the heate of their inflammation, by reaſon they enter more eaſily by the tenuity of their ſubſtance, ſuch things as have a more firme conſiſtence adhere more tenaciouſly, and worke more certainely. Moiſt *collyria* are made of juices, mucilages, waters of herbes, flowers, ſeeds, metalline bodies, galles, and other ſuch like medicines, which are repercuſſives, reſolvers, detergents, anodines, and the like, according to the nature of the preſent diſeaſe.

Their matter.

Sometimes they are made of juices and diſtilled waters onely, otherwhiles powders, or dry *collyria* made into powder, are mixed with them, together with the white of an egge. Powders are preſcribed to ʒ ii. and liquors to ℥ iv. or ℥ v. in medicines for the eyes; but for other parts, as when it is to be injected into the urenary paſſage, they may be preſcribed to the quantity of a pinte. Dry *Collyria* are made of powders exceeding finely beaten or ground, and incorporated with ſome juice, whence it is that they differ little from Trochiſces. Wherefore the *collyrium album Rhaſis* is now uſually termed a Trochiſce, and kept with them. Cathæreticke powders are not applied in the forme of a moiſt *collyrium*, but in the forme of a liniment, that is, incorporated with fat or oile. All theſe things ſhall be made more plaine by the following examples,

A repercuſsive *collyrium.* An anodine. A detergent.

℞. *aq. plant. & roſar. an.* ℥ ii. *album. ovi unum, bene agitatum, miſce, fiat collyrium.* ♃. *aq. roſar. & viol. an.* ℥ iii. *trochiſ. alb. Rhaſ. cum opio,* ʒ ii. *fiat collyrium.* Or, ℞. *decoct. fœnug.* ℥ iii. *mucag. ſem. lini,* ℥ ii. *ſacchar. cand.* ʒ i. *croci,* ℈ i. *fiat collyr.* ℞. *thuris, myrrh. an.* ℈ ii. *tut. prepar. & antimon. lot. an.* ʒ ii. *cum ſucco chelidon. fiat collyrium in umbra ſiccand.* ℞. *fellis perdic. aut lepor.* ʒ ß. *ſucci fœnicul.* ʒ i. *ſacchar. cand.* ʒ ii. *ſyrup. roſ. excipiantur, fiat collyrium.*

Wee uſe *collyria* in wounds, ulcers, fiſtula's, ſuffuſions, inflammations, and other diſeaſes of the eyes.

CHAP. XXXV.

Of Errhines and Sternutatories.

What an errhine is. Their differences.

ERrhines are medicines appointed to bee put into the noſe to purge the braine of its excrementitious humours by the noſtrills, or to deterge ſuch excrements as are therein, by reaſon of an *ozana, polypus,* or the like diſeaſe. Errhines are either liquid or dry, or elſe hard, and of the conſiſtence of an emplaſter. Liquid errhines, which uſually are to purge the head, are made of the juices of herbes, as beets, coleworts, marjoram, pimpernell, hyſſope or balme, or of their decoctions taken alone, or mixed with wine, or ſyrupe, as *oxymel ſcilliticum,* ſyrupe of hyſſope, roſes, or *mel anthoſatum*: ſometimes powders are mixed with theſe liquors, as of pepper, *euphorbium,* pellitory of Spaine, hore-hound, *nigella romana, caſtoreum,* myrrhe, white ellebore, ſow-bread, and other like, in a ſmall quantity, to wit, to ʒ i. little more or leſſe according to the vehemency of the diſeaſe. Wee will make this more plaine by examples.

The forme of one.

℞. *ſucci betæ, majoran, braßic. an.* ℥ i. *depurentur, & modice bulliant cum vini albi,* ℥ ii. *oxymelit. ſcillit.* ℥ ß. *fiat errhinum.* When as you deſire to attract more powerfully from the braine, you may diſſolve in errhines ſome purging medicines, as agaricke, *diaphœnicon, ſenna, carthamus,* and the like: hence doth ariſe the diſtinction of errhines into ſuch as are meet to purge phlegme, choler, and melancholy. This following example is ſet downe by *Rondeletius.* ℞. *rad. pyreth. irid. an.* ʒ i. *puleg. calam. origon. an.* m i. *agar. trochiſc.* ʒ iii. *flor. anthos & ſtæchad. an.* p i. *fiat decoctio in colatur.* ℔ i. *diſſolve mellis anthoſati & ſcillit. an.* ʒ iii. *fiat caputpurgium.* But it is better to this purpoſe to make uſe of purging ſimples, as agarick, turbeth, coloquintida, and the like, than of compoſitions, as *diaphænicon,* for theſe make the decoction more thick, and leſſe fit to enter the paſſages of the noſtrils, and the ſieve-like bones, but apt rather there to cauſe obſtruction, and intercept the freedome of reſpiration.

An errhine purging phlegme.

An errhine with powders.

℞. *ſucci betæ,* ʒ i. *aq. ſalv. & beton. an.* ʒ ii ß. *pul. caſtor.* ℈ ß. *piper. & pyreth. an.* ℈ i. *fiat caputpurgium.* Dry errhines that are termed ſternutatories, for that they cauſe ſneeſing, are made of powders onely, to which purpoſe the laſt mentioned things are uſed; as alſo aromaticke things in a ſmall quantity, as to ʒ ii. at the moſt: as,

A ſternutatory.

℞. *major. nigel. caryoph. zinzib. an.* ℈ i. *acor. pyreth. & panis porcin. an.* ℈ ß. *euphorb.* ℈ i. *terantur diligenter, & in nares mittantur, aut inſufflentur.* Errhines of the conſiſtence of emplaſters, by the Latines vulgarly called *Naſalia,* are made of the deſcribed powders or gums diſſolved in the juice of ſome of the forementioned herbs,

incorporated

The matter of ſolid errhines.

Their uſe.

The manner of uſing them.

To whom they are hurtfull.

incorporated with turpentine and waxe, that ſo they may the better be made into a pyramidall forme to bee put into the noſtrills. As, ℞. *majoran. ſalv. nigel.* ℈ ii. *pip. alb. caryoph. galang. an.* ℈ i. *pyreth. euphorb. an.* ʒ ß. *panis porcin. ellebor. alb. an.* ℈ i. *terantur, & in pulverem redigantur*. And then with turpentine and waxe as much as ſhall be ſufficient, make them up into *Naſalia* of a pyramidall or taper faſhion. Wee uſe errhines in inveterate diſeaſes of the braine, as the epilepſie, feare of blindnſſe, an apoplexie, lethargie, convulſion, the loſt ſenſe of ſmelling: yet we firſt uſe generall remedies and evacuations, leſt by ſneeſing and the like concuſſion of the brain for the excluſion of that which is offenſive thereto, there ſhould be made a greater attraction of impurity from the ſubjacent parts. Liquid things muſt be drawn up into the noſtrils warme out of the palme of the hand, to the quantity of ℥ ß. the mouth being in the interim filled with water, leſt the attracted liquor ſhould fall upon the pallat, and ſo upon the lungs: dry errhines are to be blown into the noſe with a pipe or quill: ſolid ones muſt be faſtned to a thred, that they may be drawn forth as need requires, when as they are put up into the noſtrils. The morning (the belly being empty) is the fitteſt time for the uſe of errhines. If by their uſe the noſe ſhall be troubled with an itching, the paine thereof muſt bee mitigated with womans milke, or oyle of violets. The uſe of attractive errhines is hurtfull to ſuch as are troubled with diſeaſes of the eyes, or ulcers in the noſe, as it oft times falls out in the *Lues venerea*: wherefore in this caſe it will bee beſt to uſe Apophlegmatiſmes, which may divert the matter from the noſe.

CHAP. XXXVI.

Of Apophlegmatiſmes, or Maſticatories.

What an apophlegmatiſm is.

The differences.

Apophlegmatiſmoi in Greeke, and *Maſticatoria* in Latine, are medicines which kept or held in the mouth and ſomewhat chawed, doe draw by the mouth forth of the braine excrementitious humours, eſpecially phlegme: now they are chiefly made foure manner of waies; the firſt is when as the medicines are received in hony or waxe, and formed into pills, and ſo given to chaw upon. The ſecond is when as the ſame things are bound up in a fine linnen cloath, ſo to be held in the mouth. The third is when as a decoction of acride medicines is kept in the mouth for a pretty ſpace. The fourth is when as ſome acride medicine, or otherwiſe drawing flegme, as pellitory of Spaine, maſtich, and the like, is taken of it ſelfe to the quantity of a haſell nut, and ſo chawed in the mouth for ſome ſpace. The matter of maſticatories is of the kinde of acrid medicines, as of pepper, muſtard, hyſſope, ginger, pellitory of Spaine, and the like; amongſt which you muſt make choice chiefly of ſuch as are not troubleſome by any ingrate taſte, that ſo they may be the longer kept in the mouth with the leſſe offence & loathing. Yet maſticatories are ſometimes made of harſh or acerbe medicines, as of berberies, the ſtones of prunes or cherries, which held for ſome ſpace in the mouth, draw no leſſe ſtore of flegme than acrid things; for the very motion and rowling them up and down the mouth attracts, becauſe it heats, compreſſes, & expreſſes: the quantity of the medicine ought to bee from ℥ ß. to ℥ i ß.: as, ℞. *pyreth. ſtaphiſag. an.* ʒ i ß. *maſtich.* ʒ ß. *pulverentur & involventur nodulis in maſticatoria.* Or, ℞. *Zinzib. ſinap. an.* ʒ i. *euphorb.* ℈ ii. *piper.* ʒ ß. *excipiantur melle, & fiant paſtilli pro maſticatoriis.* ℞. *hyſſop. thym. origan. ſalv. an.* p i. boile them in water to waſh the mouth withall. Or, ℞. *Zinzib. caryoph. an.* ʒ i. *pyreth. pip. an.* ʒ ß. *ſtaphiſagr.* ʒ ii. *maſtiches,* ℥ ß. *excipiantur, fiant paſtilli pro maſticatoriis.* We uſe maſticatories in old diſeaſes of the braine, dimneſſe of the ſight, deafneſſe, puſtles of the head and face, and ſometimes to divert the excrements which runne to the noſe being ulcerated.

The uſe of maſticatories.

To whom hurtfull.

Maſticatories are very hurtfull to ſuch as have their mouths or throats ulcerated, as alſo to them whoſe lungs are ſubject to inflammations, deſtillations and ulcers; for then errhines are more profitable to derive the matter of the diſeaſe by the noſtrils.

For though the humour drawn from the braine into the mouth by the meanes of the maſticatory, may bee thence caſt forth by coughing and ſpitting, yet in the interim nature will bee ſo inured to that paſſage for the humour, ſo that it will run that way when as wee ſleepe, and fall downe upon the parts thereunder, weake either by nature or by accident.

The time fitteſt for the uſe of Apophlegmatiſmes is the morning, the body being firſt purged: if any ingratefull taſte remain in the mouth, or adhere to the tongue by uſing of maſticatories, you ſhall take it away by waſhing the mouth with warm water, or a decoction of liquorice and barly.

CHAP. XXXVII.

Of Gargariſmes.

What a gargle is.

The differences thereof.

A Gargle or gargariſme is a liquid compoſition fit for to waſh the mouth and all the parts thereof, to hinder defluxion and inflammation, to heale the ulcers which are in thoſe parts, to aſſwage paine. Their compoſition is twofold, the firſt is of a decoction of roots, leaves, flowers, fruits, and ſeeds fit for the diſeaſe; now the decoction is to be made either in faire water alone, or with the admixture of white or red wine, or in the decoction of liquorice and barly, or of pectorall things, as the intention of the Phyſitian is to repell, coole, or hinder inflammation, as in the tooth-ache cauſed by matter which is yet in motion; to diſcuſſe, as in the tooth-ache already at the height; or to cleanſe, as in the ulcers of the mouth; or to dry and binde, as when it is fit to heale the ulcers already cleanſed.

Their matter.

The other way of making of gargariſmes is without decoction, which is, when as wee make them either of diſtilled waters onely, or by mixing them with ſyrupes, mucilages, milke, the whey of Goats milke carefully ſtrained. There are mixed ſometimes with a decoction, diſtilled waters and mucilages, *mel roſatum*, *oxymel ſimplex*, *diamoron*, *dianucum*, *hiera picra*, *oxyſacchara*, *ſyrup. de roſis ſiccis*, *ſyrupus acetoſus*, and other things, as the preſent caſe ſhall ſeem to require, as alome, *balauſtia*, myrrhe, *olibanum*, ginger, pepper, cinamon, dry roſes, and many ſuch things, even ſo that oft times there enter into gargles ſuch medicines as have force to draw from the braine, as pellitory of Spaine, carthamus, turbith, and ſuch things as have no bitterneſſe, which is the cauſe that neither agrick nor coloquintida ought to enter into gargariſmes.

The quantity of liquor for a gargariſme is commonly from ℔ ß. to ℔ i. mixe therewith ſome ℥ ii. of ſyrupes, but put in powders ſparingly, as ſome ʒ iii. Alome may ſometimes bee put in to ʒ vi. let mucilages be extracted out of ʒ ii. of ſeeds: let theſe ſerve for ſome examples.

An aſtringent gargle.

℞. *plant. polygon. oxalidis, an.* m i. *roſar. rub.* p ß. *hordei,* p i. *fiat decoctio ad* ℥ viii. *in qua diſſolve ſyrupi myrtillorum,* ʒ vi. *dianucum,* ℥ ß. *fiat gargariſma.* Or,

An anodine gargle.

℞. *cham. melil. aneth. an.* p i. *roſ. rub.* p ß. *paſſul. mund. & ficuum, an.* p iii. *decoquantur in æquis partibus vini & aquæ, ad* ℥ vi. *addendo mucag. ſem. lini, & fœnugr. an.* ℥ ii. *fiat gargariſma.*

A deterſive.

Or elſe, ℞. *aq. plantag. liguſt. abſinth. an* ℥ ii. *mellis roſati colati,* ʒ vi. *ſyrupi roſar. ſiccar. & de abſinth. an.* ʒ vi. *fiat gargariſma.*

We uſe gargles in the morning faſting after generall purgations; they are ſometimes taken or uſed cold, when as a maligne, acride, and thinne humour fals downe, ſometimes warme, but let theſe things bee done according as the Phyſitian ſhall adviſe.

CHAP.

CHAP. XXXVIII.

Of Dentifrices.

What a dentifrice is.

The differences

The matter whereof they conſiſt.

Dentifrices are medicines prepared and ſerving divers waies for to cleanſe, whiten, and faſten the teeth; for from their uſe they take their name. Of theſe ſome are dry, otherſome moiſt: of the dry ſome have the forme of opiats, others of pouders groſſely beaten, but the moiſt are commonly made by diſtillation: the matter of dry dentifrices is taken from detergent and drying things, ſuch as are corall white and red, harts-horne, ſcuttle bones, alome, cryſtall, pumice, ſal nitre, myrrhe, frankincenſe, *balauſtia*, acornes, all ſorts of ſhels of fiſhes: all theſe are to bee made into powder either by burning, or without it, for ſcuttle bones burnt caſt forth a ſtinking and unpleaſant ſmell. To theſe for ſmell ſake are added certaine aromaticke things, as cinamon, cloves, nutmegs, and the like: ſuch powders if mixed with ſome ſyrupe, as *oxymel ſcilliticum*, or with mucilage of gum arabicke and tragacanth, will become opiates, to be made into a pyramidall forme of ſome fingers length, round or ſquare, and ſharpe pointed, that dryed they may ſerve for dentifrices.

Sometimes emollient roots are boiled with ſalt or alome, that dryed againe they may be uſed for dentrifices: moiſt ones are made of drying herbs, diſtilled together with drying and aſtringent things.

A powder for a Dentifrice.

All the differences ſhall appeare by the following examples. ℞. *lapidis ſpong. pumicis, & cornu cervi uſt. an.* ʒ ii. *coral. rub. & cryſtal. an.* ʒ i. *alum. & ſal. uſt. an.* ʒ i ß. *cinamom. & caryoph. roſar. rub. pulver. an.* ℈ ii. *fiat pulvis pro dentifricio.* Or, ♃. *oſsis ſepiæ,* ʒ ß. *maſtiches, coralli rubri uſti, an.* ʒ ii. *cornu cervi uſti,* ʒ i ß. *aluminis, carbonis, roriſmarini, an.* ʒ i. *cinamomi,* ʒ ii. *fiat pulvis pro dentifricio.* Or, ♃. *oſsis ſapiæ, alum. & ſalis uſti, an.* ʒ i. *cryſtalli, glandium, myrrhæ, thuris, an.* ℈ ii. *corticis granatorum, macis, cinamomi, an.* ℈ i. *fiat pulvis qui excipiatur mucagine gummi tragacanth. & formentur pyramides longæ, ſiccand. pro dentifricio.* Or, ℞. *rad. malvæ junioris, & biſmalvæ, an.* ℥ ii. *coquantur in aqua ſalſa aut aluminoſa, deinde ſiccentur in furno pro dentifricio.* ℞. *ſalis,* ℥ vi. *alumin.* ʒ iii. *thuris, maſtiches, ſang. dracon. an.* ʒ ß. *aquæ roſ.* ℥ vi. *diſtillentur in alembico vitreo pro dentifricio.*

Their uſe.

Dentrifices are not onely good to poliſh, cleanſe, and ſtrengthen the teeth; but wee alſo oft times uſe them for the tooth-ache, the diſeaſes of the mouth, and ulcers of the gummes. You may uſe them in the morning, before and after meat.

The antients, of lentiſke wood made themſelves tooth-picks, and ſuch devices to ſtrengthen their looſe teeth, which alſo at this day is in uſe with thoſe of *Languedock*, with whom this wood is plentifull, ſo that it may be brought thence for the uſe of Noblemen and Gentlemen; myrrhe may alſo ſerve for this ſame uſe, and any other aſtringent wood.

Our people commonly uſe the ſtalks of fennell, yet have they no faculty to faſten the teeth, but their ſmell is gratefull.

CHAP. XXXIX.

Of Bagges or Quilts.

What a bag or quilt is.

Their differences.

Phyſitians terme a bagge or *ſacculus*, the compoſition or mixture of dry and powdred medicines put in a bagge, therefore it is as it were a dry fomentation. Their differences are not drawne from any other thing than from the variety of the parts whereto they are applied: ſuch as are for the head muſt be made into the faſhion of a cap, thoſe which bee for the whole ventricle muſt be made into the forme of a citherne; thoſe for the ſpleene, like to an oxes tongue: laſtly, ſuch as are for the liver, heart and other parts muſt be made according to the figure of thoſe parts. Their matter is uſually taken from whole ſeeds fryed in a frying-pan, or made into powder; there are ſometimes added roots, flowers, fruits, rinds, cordiall powders, and other dry medicines, which may bee eaſily brought into powder, and conduce to the grieved parts; the quantity is different according to the magnitude of the affected parts; In the books of practiſers it is commonly found preſcribed from ℥iii. to ℥viß. ſometimes flowers, and dry herbs are preſcribed by handfulls and pugils: and here there is need of an artificiall conjecture to conceive and appoint a fit quantity of powders: but let us give you ſome examples.

A quilt for the ſtomacke.

♃. *roſar. rub.* p i. *maſtich.* ℥ ß. *coralli rub.* ʒ iii. *ſem. aniſi, & fænic. an.* ʒ ii. *nucis moſchat.* ʒ i. *ſummitat. abſinth. & menth. an.* m i. *tritis omnibus, fiat ſacculus conſutus & compunctus pro ventriculo.*

A cap for a cold head.

℞. *furfuris macri,* p i. *milii,* ℥ i. *ſalis,* ʒ ii. *roſar. rub. flor. roriſmarini, ſtæchados, caryoph. an.* m ii. *fol. beton. & ſalv. an.* ʒ iii. *tritis omnibus fiat cucupha, interſuta & calefacta fumo thuris, & ſandarachæ exuſtorum, capiti apponatur.*

A quilt for the heart.

♃. *flor. borag. bugloſ. & violar. an.* p ii. *cortic. citri ſicci, macis, ligni aloes, raſuræ eboris, an.* ʒ i. *oſsis de corde cervi, croci, an.* ℈ ii. *fol. meliſ.* m ß. *pulveris diambræ,* ʒ ß. *contritis omnibus fiat ſacculus è ſerico pro corde, irrorandus aqua ſcabioſæ.*

Their uſe.

Wee uſe bagges for the ſtrengthening of the noble parts, as the braine, heart, liver, as alſo for thoſe leſſe noble, as the ſtomacke, ſpleene, breaſt; laſtly for diſcuſſing flatulencies in what part ſoever, as in the collicke, and in a baſtard pleuriſie proceeding from flatulencies. The powders muſt bee ſtrawed upon carded bombaſt, that they runne not together, and then they muſt bee ſewed up or quilted in a bagge of linnen or taffaty.

Wee often times moiſten theſe bagges in wine or diſtilled water, and ſometimes not with the ſubſtance thereof, but by the vapour only of ſuch liquors put into a hot diſh: thus oft times the bagges are heated by the vapour onely, and oft times at the fire in a diſh by often turning them. Theſe, if intended for the heart, ought to bee of crimſon or skarlet ſilke, becauſe the skarlet berry, called by the Arabians *Kermes,* is ſaid to refreſh and recreate the heart. Certainly they muſt alwaies be made of ſome fine thing, whether it be linnen or ſilke.

CHAP. XL.

Of Fumigations.

What a fumigation is.

Their differences and matter.

A *Suffitus* or fumigation is an evaporation of medicines having ſome viſcous and fatty moiſture: of fumigations ſome are dry, otherſome moiſt, the dry have the form of trochiſces or pills: their matter ought to be fatty and viſcous, ſo that it may ſend forth a ſmoake by being burnt: ſuch are *ladanum,* myrrhe, maſticke, pitch, waxe, roſine, turpentine, *caſtoreum, ſtyrax,* frankincenſe, *olibanum,* and other gummes, which may bee mixed with convenient powders: for they yeeld them a body and firme conſiſtence; the fumigations that are made of powders only, yeeld neither ſo ſtrong nor long a fume.

A cephalicke fume.

The quantity of the powders muſt bee from ℥ ß. to ℥ i ß. but the gummes to ℥ ii. as, ℞. *ſandarachæ, maſtiches, roſar. an.* ʒ i. *benioini, galang. an.* ʒ iii. *terebinthina excipiantur, & fiant trochiſci, quibus incenſis ſuffumigentur tegumenta capitis.* ♃. *marcaſitæ,* ℥ ii. *bdellii, myrrhæ, ſtyracis, an.* ℥ i ß. *ceræ flavæ, & terebinth. quod ſufficit, fiant formulæ pro ſuffumigio.*

For the hardneſſe of the ſinewes.

♃. *cinnabaris,* ℥ ii. *ſtyracis & benzoini, an.* ℥ ii. *cum terebinth. fiant trochiſci pro ſuffumigio per embotum.*

For the relicks of the *Lues venerea.*

Wee uſe fumigations in great obſtructions of the braine, ulcers of the lungs, the *aſthma,* an old cough, paines of the ſides, wombe, and the diſeaſes of ſome other parts; ſometimes the whole body is fumigated, as in the cure of the *Lues venerea* to procure ſweat; ſometimes onely ſome one part whereto ſome reliques of the *Lues* adheres; ſuch fumigations are made of *cinnabaris*, wherein there is much *hydrargyrum*. The fume muſt be received by a funnell, that ſo it may not bee diſperſed, but may all be carried unto the part affected, as is uſually done in the affects of the womb and eares.

The manner of uſing them.

In fumigations for the braine and cheſt, the vapour would be received with open mouth; which thence may paſſe by the weazon into the cheſt, by the palate and noſtrils into the braine: but in the interim let the head bee vailed, that none of the vapour may flye away. Moiſt fumigations are made ſomewhiles of the decoction of herbes, otherwhiles of ſome one ſimple medicine boiled in oile, ſometimes a hot fire-ſtone is quencht in vinegar, wine, *aqua vitæ*, or the like liquor, ſo to raiſe a humide vapour. We oft times uſe this kinde of fumigation in overcomming ſcirrhous affects, when as we would cut, diſcuſſe, penetrate deep, and dry: take this as an example thereof.

℞. *laterem unum ſatis craſſum, aut marchaſitam ponderis* ℔ i. heat it red hot, and then let it bee quencht in ſharpe vinegar, powring thereon in the meane while a little *aqua vitæ*, make a fumigation for the grieved part.

The manner of a moiſt fumigation.

Fumes of the decoction of herbes doe very little differ from fomentations properly ſo called; for they differ not in the manner of their compoſure, but onely in the application to the affected parts: therefore let this be an example of a humide fumigation.

℞. *abſinth. ſalv. rut. origan. an.* p i. *rad. bryon. & aſar. an.* ℥ ß. *ſem. ſinap. & cumin. an.* ʒ ii. *decoquantur in duabus partibus aquæ, & una vini pro ſuffitu auris cum emboto*: and oft times ſuch fumigations are made for the whole body, whereof we ſhall treat hereafter.

A moiſt fume for the eares.

Chap. XLI.

Of a particular, or halfe-Bath.

A *Semicupium* or halfe-bath is a bath for the one halfe of the body, that is, for the parts from the belly downewards; it is called alſo an *inſeſsio*, becauſe the patient ſitteth to bathe in the decoction of herbes: in which forme and reſpect a *ſemicupium* differs from a fomentation; for it is compoſed of the ſame matter, to wit, a decoction of herbes, roots, ſeedes, fruits, but in this the quantity of the decoction is the greater, as wee ſhall teach by the following example.

What an *inſeſsio* is.

The matter.

℞. *malv. biſmalv. cum toto, an.* m i ß. *beton. ſaxifrag. pariet. an.* m i. *ſem. melon. milii ſolis, alkekengi, an.* ʒ iii. *cicer. rub.* p ii. *rad. apii, graminis, fœniculi, eryngii, an.* ʒ i. *decoquantur in ſufficienti quantitate aquæ pro inſeſſu.*

A halfe bath for the ſtone in the kidneies.

Wee uſe theſe halfe-baths in affects of the kidneyes, bladder, wombe, fundament, and lower belly, or otherwiſe when as the patient by reaſon of weakneſſe and feare of diſſipating the ſpirits, cannot ſuffer or away with a whole bath. The manner of uſing it is thus; fill ſome bagges with the boiled herbes, or other parts of plants, and cauſe the patient to ſit upon them; yet in the interim keepe the vapours from the head, leſt they ſhould offend it, by caſting over it a linnen cloath, or elſe let him not enter thereinto untill the vapour be exhaled.

The uſe.

The manner of uſing it.

Chap.

Chap. XLII.

Of Bathes.

The faculties of Bathes.

Their differences.

Naturall Baths.

Bathes are nothing elſe than as it were a fomentation of the whole body, both for preſerving health, and the cure of diſeaſes: this is a very commodious form of medicine, and among other externall medicines much celebrated by the Greeke, Arabian, and Latine Phyſitians. For a bath, beſides that it digeſts the acrid humors, and ſooty excrements lying under the skin, mitigates paines and wearineſſe, and corrects all exceſſe of diſtemper: moreover, in the cure of feavers, and many other contumacious and inveterate diſeaſes it is the chiefe and laſt remedy, and as it were the refuge of health, ſtored with pleaſing delight. Bathes are of two ſorts, ſome naturall, others artificiall: naturall, are thoſe which of their owne accord, without the operation or help of art, prevaile or excell in any medicinall quality. For the water which of it ſelfe is devoide of all quality that is perceivable by the taſte, if it chance to be ſtrained through the veines of metals, it furniſhes and impregnates it ſelfe with their qualities and effects: hence it is that all ſuch water excells in a drying faculty, ſometimes with cooling and aſtriction, and otherwhiles with heate and a diſcuſſing quality. The bathes whoſe waters being hot or warm, doe boile up, take their heat from the cavities of the earth and mines filled with fire; which thing is of much admiration whence this fire ſhould ariſe in ſubterrene places, what may kindle it, what feed or nouriſh it for ſo many yeeres, and keep it from being extinct. Some Philoſophers would have it kindled by the beames of the ſunne, others by the force of lightnings penetrating the bowels of the earth, others by the violence of the aire vehemently or violently agitated, no otherwiſe than fire is ſtrucke by the colliſion of a flint and ſteele. Yet it is better to referre the cauſe of ſo great an effect unto God the maker of the Univerſe, whoſe providence piercing every way into all parts of the World, enters and governes the ſecret parts and paſſages thereof. Notwithſtanding they ſeeme to have come neereſt the truth, who referre the cauſe of heat in waters unto the ſtore of brimſtone conteined in certaine places of the earth, becauſe amongſt all minerals it hath moſt fire and matter fitteſt for the nouriſhing thereof. Therefore to it they attribute the flames of fire which the Sicilian mountaine *Ætna* continually ſends forth. Hence alſo it is that the moſt part of ſuch waters ſmell of Sulphur, yet others ſmell of Alom, others of nitre, others of Tarre, and ſome of Coproſſe.

How to know whence the Bathes have their efficacy.

Now you may know from the admixture of what metalline bodies the waters acquire their faculties by their taſte, ſent, colour, mud, which adheres to the channels through which the water runnes, as alſo by an artificiall ſeparation of the more terreſtriall parts from the more ſubtle. For the earthy droſſe which ſubſides or remaines by the boiling of ſuch waters, will retaine the faculties and ſubſtance of Brimſtone, Alume, and the like minerals: beſides alſo, by the effects and the cure of theſe or theſe diſeaſes you may alſo gather of what nature they are. Wherefore wee will deſcribe each of theſe kinds of waters by their effects, beginning firſt with the ſulphureous.

The condition of naturall ſulphureous waters.

Sulphureous waters powerfully heat, dry, reſolve, open, and draw from the center unto the ſurface of the body; they cleanſe the skin troubled with ſcabs & tettars; they ceaſe the itching of ulcers, and digeſt & exhauſt the cauſes of the gout, they help paines of the collicke and hardened ſpleenes. But they are not good to be drunk, not onely by reaſon of their ungratefull ſmell and taſte, but alſo by reaſon of the malitiouſneſſe of their ſubſtance, offenſive to the inner parts of the body, but chiefly to the liver.

Of aluminous waters.

Aluminous waters taſte very aſtrictively, therefore they dry powerfully, they have no ſuch manifeſt heat, yet drunke, they looſe the belly: I believe by reaſon of their heat and nitrous quality they cleanſe and ſtay defluxions, and the courſes flowing too immoderately; they alſo are good againſt the tooth-ache, eating ulcers, and the hidden abſceſſes of the other parts of the mouth.

Salt

Of ſalt and nitrous.

Salt and nitrous waters ſhew themſelves ſufficiently by their heat: they heat, dry, bind, cleanſe, diſcuſſe, attenuate, reſiſt putrefaction, take away the blackeneſſe comming of bruiſes, heale ſcabby and maligne ulcers, and helpe all œdematous tumors.

Of bituminous.

Bituminous waters heate, digeſt, and by long continuance ſoften the hardened ſinewes; they are different according to the various conditions of the bitumen that they waſh, and partake of the qualities thereof.

Of braſen.

Braſen waters, that is, ſuch as retaine the qualities of braſſe, heat, dry, cleanſe, digeſt, cut, binde, are good againſt eating ulcers, fiſtula's, the hardneſſe of the eyelids, and they waſte and eat away the fleſhy excreſcences of the noſe and fundament.

Of iron.

Iron waters coole, dry, and bind powerfully, therefore they helpe abſceſſes, hardened milts, the weakneſſes of the ſtomacke and ventricle, the unvoluntary ſhedding of the urine, and the too much flowing termes, as alſo the hot diſtemper of the liver and kidneyes. Some ſuch are in the Lucan territory in *Italy*.

Of leaden.

Leaden waters refrigerate, dry, and performe ſuch other operations as lead doth: the like may bee ſaid of thoſe waters that flow by chalke, plaſter, and other ſuch mineralls, as which all of them take and performe the qualities of the bodies by which they paſſe.

Of hot baths.

Hot waters or bathes helpe cold and moiſt diſeaſes, as the Palſie, convulſion, the ſtiffeneſſe and attraction of the nerves, trembling palpitations, cold diſtillations upon the joints, the inflation of the members by a dropſie, the jaundiſe by obſtruction of a groſſe, tough, and cold humour, the paines of the ſides, collick, and kidneies, barrenneſſe in women, the ſuppreſſion of their courſes, the ſuffocation of the womb, cauſeleſſe wearineſſe, thoſe diſeaſes that ſpoile the ſkinne, as tettars, the leproſie of both ſorts, the ſcabbe, and other diſeaſes ariſing from a groſſe, cold and obſtructing humour, for they provoke ſweats.

To whom hurtfull.

The faculties of cold baths.

The Spaw.

Yet ſuch muſt ſhunne them as are of a cholericke nature, and have a hot liver, for they would cauſe a *cachexia* and dropſie by overheating the liver. Cold waters or baths heale the hot diſtemper of the whole body & each of the parts therof, and they are more frequently taken inwardly than applied outwardly; they help the laxneſſe of the bowels, as the reſolution of the retentive faculty of the ſtomacke, entralls, kidneies, bladder, and they alſo adde ſtrength to them. Wherefore they both temper the heat of the liver, and alſo ſtrengthen it, they ſtay the *Diarrhæa*, Dyſentery, Courſes, unvoluntary ſhedding of urine, the *Gonnorrhæa*, Sweats, and Bleedings. In this kinde are chiefly commendable the waters of the Spaw in the country of *Liege*, which inwardly and outwardly have almoſt the ſame faculty, and bring much benefit without any inconvenience, as thoſe that are commonly uſed in the drinks and broaths of the inhabitants.

Of artificiall baths.

In imitation of naturall baths, there may in want of them be made artificiall ones, by the infuſing and mixing the powders of the formerly deſcribed mineralls; as, Brimſtone, Alume, Nitre, *Bitumen*: alſo you may many times quench in common or raine water, iron, braſſe, ſilver and gold heated red hot, and ſo give them to be drunk by the patient, for ſuch waters doe oft times retain the qualities and faculties of the metals quenched in them, as you may perceive by the happy ſucceſſe of ſuch as have uſed them againſt the Dyſentery.

The faculty of a bath of warme water.

Beſides theſe there are alſo other bathes made by art of ſimple water, ſometimes without the admixture of any other thing, but otherwhiles with medicinall things mixed therewith, and boiled therein. But after what manner ſoever theſe bee made, they ought to be warme, for warm water humects, relaxes, mollifies the ſolid parts, if at any time they bee too dry, hard, and tenſe; by the aſcititious heat it opens the pores of the ſkinne, digeſts, attracts, and diſcuſſes fuliginous and acrid excrements remaining betweene the fleſh and the skin. It is good againſt ſun-burning and wearineſſe, whereby the ſimilar parts are dried more than is fit. To conclude, whether we be too hot or cold, or too dry, or be nauſeous, we find manifeſt profit by baths made of ſweet or warme water, as thoſe that may ſupply the defect of frictions and exerciſes: for they bring the body to a mediocrity of temper, they encreaſe and ſtrengthen the native colour, and by procuring ſweat diſcuſſe flatulencies; therefore they are very uſefull in hecticke feavers, and in the declenſion of all feavers, and againſt raving and talking idely, for they procure ſleep. But becauſe water alone cannot long adhere to the body, let oile bee mixed or put in them, which may hold in the water, and keep it longer to the skinne.

Why we put oile into baths.

Theſe bathes are good againſt the inflammations of the lungs and ſides, for they mitigate pain, and help forward that which is ſuppurated to excluſion, when as generall remedies according to art have preceded, for otherwiſe they will cauſe a greater defluxion on the afflicted parts: for a bath (in *Galens* opinion) is profitably uſed to diſeaſes when as the morbifick matter is concocted. To this purpoſe is choſen rain water, then river water, ſo that it be not muddy, and then fountaine water; the water of ſtanding lakes and fennes is not approved of, for it is fit that the water which is made choice of for a bath of ſweet water, ſhould bee light and of ſubtle parts, for baths of waters which are more than moderately hot or cold yeeld no ſuch commodity; but verily they hurt in this, that they ſhut up or cloſe the pores of the body, and keepe in the fuliginous excrements under the skinne; other bathes of ſweet or freſh water conſiſt of the ſame matter as fomentations doe, whence it is that ſome of them relaxe, others mitigate paine, others cleanſe, and otherſome procure the courſes, that is compounded of a decoction of ingredients or plants having ſuch operations. To theſe there is ſometimes added wine, other whiles oile, ſometimes freſh butter or milke, as when the urine is ſtopped, when nephriticke paines are violent, when the nerves are contracted, when the habite of the body waſtes and wrinkles with a hecticke dryneſſe, for this corrugation is amended by relaxing things, but it is watred, and as it were fatted by humecting things, which may penetrate & transfuſe the oily or fatty humidity into the body thus rarified and opened by the warmneſſe of a bath.

Anodine bathes are made of a decoction of medicines of a middle nature, ſuch as are temperate and relaxing things, with which wee may alſo ſometimes mixe reſolving things; they are boiled in water and wine, eſpecially in paines of the collicke proceeding from vitreous phlegme, or groſſe and thicke flatulencies conteined or ſhut up in the belly, kidneyes, or wombe. In ſuch bathes it is not fit to ſweat, but onely to ſit in them ſo long untill the bitterneſſe of the paine be aſſwaged or mitigated, leſt the powers weakened by paine, ſhould bee more reſolved by the breaking forth of ſweat: emollients are ſometimes mixed with gentle detergents, when as the skin is rough and cold, or when the ſcailes or cruſt of ſcabs is more hard than uſuall, then in concluſion we muſt come to ſtrong deterſives and driers, laſtly to drying and ſomewhat aſtrictive medicines, ſo to ſtrengthen the skinne, that it may not yeeld it ſelfe ſo eaſie and open to receive defluxions. By giving you one example the whole manner of preſcribing a bath may apppeare.

Why we muſt not continue in the bath till we ſweat.

A mollifying & anodine bath.

℞. *rad. lilior. albor. biſmalv. an.* ℔ ii. *malv. pariet. violar. an.* m ß. *ſem. lini, fænug. biſmalv. an.* ℔ i. *flor. cham. melil. aneth. an.* p vi. *fiat decoctio in ſufficienti aquæ quantitate, cui permiſcito olei liliorum & lini, ana,* ℔ ii. *fiat balneum in quo diutius natet æger.*

Cautions to be obſerved in the uſe of baths.

Bathes though noble remedies approved by uſe and reaſon, yet unleſſe they bee fitly and diſcreetly uſed in time, plenty, and quality, they doe much harme; for they cauſe ſhakings and chilneſſe, paines, denſity of the skinne, or too much rarefaction thereof, and oft times a reſolution of all the faculties. Wherefore a man muſt bee mindfull of theſe cautions before he enter a bath: firſt, that there be no weakneſſe of any noble and principall bowell, for the weak parts eaſily receive the humors which the bath hath diffuſed and rarified, the waies lying open which tend from the whole body to the principall parts. Neither muſt there be any plenty of crude humours in the firſt region, for ſo they ſhould be attracted and diffuſed over all the body: therefore it is not onely fit that generall purgations ſhould precede, but alſo particular by the belly and urine: beſides, the patient ſhould bee ſtrong that can faſting endure a bath as long as it is needfull. Laſtly, the bath ought to be in a warme and ſilent place, leſt any cold aire by its blowing, or the water by its cold appulſe, cauſe a ſhivering or ſhaking of the body, whence a feaver may enſue.

The morning is a fit time for bathing, the ſtomacke being faſting and empty, or ſixe hours after meat, if it be requiſite that the patient ſhould bath twice a day, otherwiſe the meat yet crude would bee ſnatched by the heate of the bath out of the ſtomacke into the veines and habite of the body. Many, of all the ſeaſons of the yeere make choice of the ſpring and end of ſummer, and in theſe times they chuſe a cleare day, neither troubled with ſtormy windes, nor too ſharpe an aire. As long as the patient is in the bath, it is fit that he take no meate, unleſſe peradventure to comfort him hee take a little bread moiſtened in wine, or the juice of an orange, or ſome damaske prunes to quench his thirſt: his ſtrength will ſhew how long it is fit that he ſhould ſtay in, for he muſt not ſtay there to the reſolution of his powers, for in baths the humide and ſpirituous ſubſtance is much diſſipated. Comming forth of the bath, they muſt preſently get them to bed, and be well covered, that by ſweating, the excrements, drawne unto the skinne by the heat of the bath, may breake out: the ſweat cleanſed, let him uſe gentle frictions, or walking, then let him feede upon meat of good juice and eaſie digeſtion, by reaſon that the ſtomacke cannot but be weakened in ſome ſort by the bath.

The fitteſt time for bathing.

How to order the patient comming forth of the bath.

That quantity of meat is judged moderate, the weight whereof ſhall not oppreſſe the ſtomacke: venery after bathing muſt not bee uſed, becauſe to the reſolution of the ſpirits by the bath, it addes another new cauſe of further ſpending or diſſipating them. Some wiſh thoſe that uſe the bath by reaſon of ſome contraction, paine, or other affects of the nerves, preſently after bathing, to dawbe or beſmeare the affected nervous parts with the clay or mudde of the bathe, that by making it up as it were in this paſte, the vertue of the bath may worke more effectually, and may more throughly enter into the affected part.

Theſe cautions being diligently obſerved, there is no doubt but the profit by bathes will be great & wonderfull: the ſame things are to be obſerved in the uſe of Stoves or Hot-houſes, for the uſe and effect of baths and hot-houſes is almoſt the ſame, which the antients therefore uſed by turne, ſo that comming forth of the bath they entred a ſtove, and called it alſo by the name of a bath, as you may gather from ſundry places of *Galen* in his *Methodus med.* wherefore I thinke it fit in the next to ſpeake of them.

CHAP. XLIII.

Of Stoves or Hot-houſes.

STOVES are either dry or moiſt: Dry, by raiſing a hot and dry aëry exhalation, ſo to imprint their faculties in the body, that it thereby waxeth hot, and the pores being opened, runnes down with ſweat. There are ſundry waies to raiſe ſuch an exhalation: at *Paris*, and whereſoever there are ſtoves or publicke hot-houſes, they are raiſed by a cleere fire put under a vaulted fornace, whence it being preſently diffuſed, heats the whole roome. Yet every one may make himſelfe ſuch a ſtove as he ſhall judge beſt and fitteſt.

The differences of Stoves.

How made.

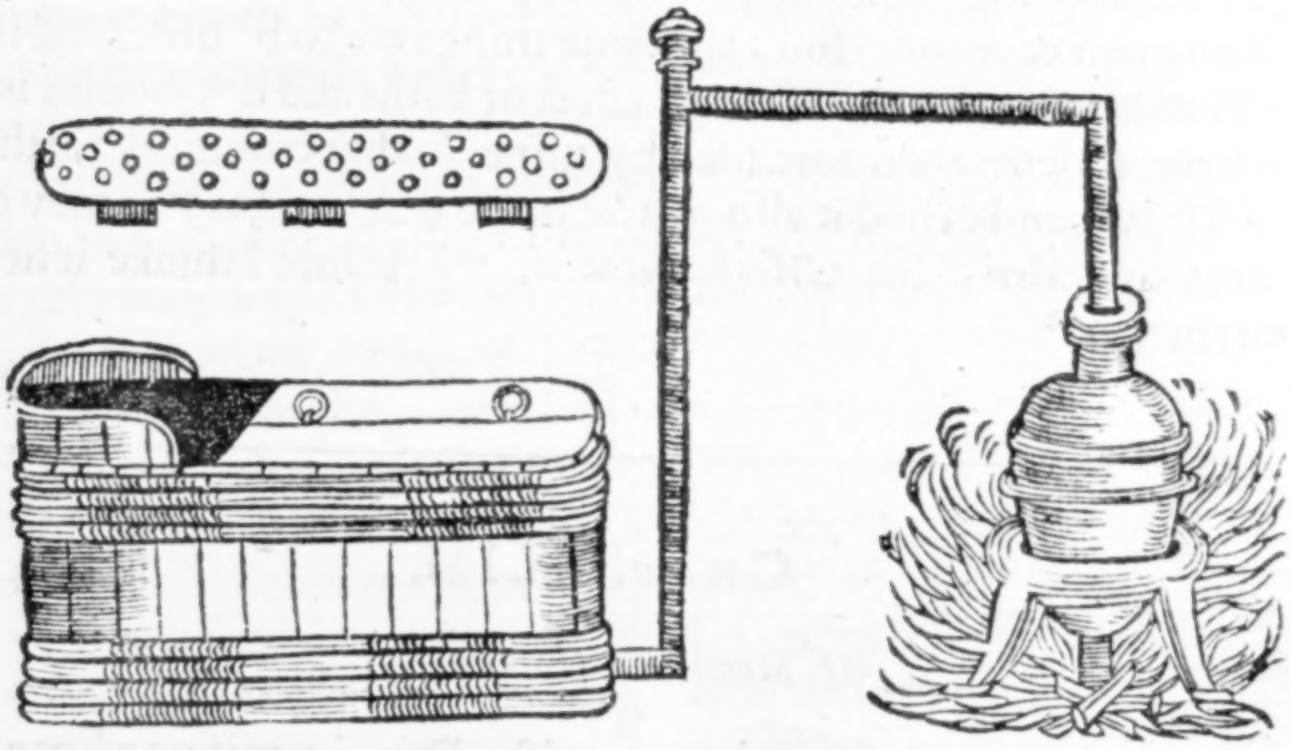
Alſo you may put red hot cogle ſtones or bricks into a tubbe, having firſt laid the bottome thereof with brickes or iron plates, and ſo ſet a ſeat in the midſt thereof, wherein the patient ſitting, well covered with a canopy drawne over him, may receive the exhalation ariſing from the ſtones that are about him, & ſo have the benefit ſweating: but in this caſe we muſt oft looke to and ſee the patient, for it ſometimes happens that ſome, neglected by their keepers otherwiſe employed, becomming faint, and their ſenſe failing them by the diſſipation of their ſpirits by the force of the hot exhalation, have ſunke down with all their bodies upon the ſtones lying under them, and ſo have beene carried halfe dead and burnt into their beds. Some alſo take the benefit of ſweating in a fornace or oven, as ſoone as bread is drawne out thereof. But I doe not much approve of this kinde of ſweating, becauſe the patient cannot as he will, much leſſe as he pleaſeth, lye or turne himſelfe therein.

Humide

A vaporous ſtove or bath.

Humid ſtoves or ſudatories are thoſe wherein ſweat is cauſed by a vapour or moiſt heat: this vapour muſt be raiſed from a decoction of roots, leaves, flowers, and ſeeds, which are thought fit for this purpoſe; the decoction is to be made in water or wine, or both together. Therefore let them all be put into a great veſſell well luted, from the top of whoſe cover iron or tinne pipes may come into the bathing tub ſtanding neere thereto, betweene the two bottomes thereof, by meanes whereof the hot vapour may enter thereinto, and diffuſe it ſelfe therein. Now it is fit the bathing tub ſhould bee furniſhed with a double bottome, the one below and whole, the other ſomewhat higher and perforated with many holes, whereupon the patient ſitting may receive a ſudorificke vapour over all his body: now this vapour, if at any time it become too hot, muſt bee tempered by opening the hole, which muſt for the ſame purpoſe be made in the top of the pipe, that ſo it may be opened and ſhut at pleaſure. In the interim the tub ſhall bee cloſely covered wherein the patient ſits, hee putting forth onely his head, that ſo hee may draw in the coole aire. In defect of ſuch pipes, the herbs ſhall bee boiled by themſelves in a caldron or kettle, and this ſhall bee ſet thus hot into the bathing tubbe at the patients feet, and ſo by caſting into it heated ſtones, a great and ſudorificke vapour ſhall be raiſed.

The delineation of a bathing Tubbe, having a double bottome, with a veſſell neare thereto, with pipes comming therefrom, and entring betweene the two bottomes of the Tubbe.



Chap. XLIV.

Of Fuci, *that is, waſhes, and ſuch things for the ſmoothing and beautifying of the ſkinne.*

This following diſcourſe is not intended for thoſe women which addicted to filthy luſt, ſeek to beautifie their faces, as baits and allurements to filthy pleaſures: but it is intended for thoſe onely, which the better to reſtraine the wandring luſts of their husbands, may endevour by art to take away thoſe ſpots and deformities which have happened to fall on their faces either by accident or age.

As the colour of the skin is, ſuch is the humour that is thereunder.

The colour that appeares in the face, either laudible or illaudible, abundantly ſhewes the temper both of the body, as alſo of thoſe humours that have the chiefe dominion therein: for every humour dyes the ſkinne of the whole body, but chiefly of the face, with the colour thereof: for choler bearing ſway in the body, the face lookes yellowiſh; phlegme ruling, it lookes whitiſh or pale; if melancholy exceed, then blackiſh or ſwart; but if blood have the dominion, the colour is freſh and red. Yet there are other things happening externally which change the native colour of the face, as ſun-burning, cold, pleaſure, ſorrow, feare, watching, faſting, paine, old diſeaſes, the corruption of meats and drinks: for the flouriſhing colour of the cheeks is not onely extinguiſhed by the too immoderate uſe of vinegar, but by the drinking of corrupt waters the face becomes ſwolne and pale.

On the contrary, laudible meats and drinks make the body to bee well coloured and comely, for that they yeeld good juice, and conſequently a good habite. Therefore if the ſpots of the face proceed from the plenitude and ill diſpoſition of humours, the body ſhall bee evacuated by blood-letting: if from the infirmity of any principall bowell, that muſt firſt of all bee ſtrengthened; but the care of all theſe things belongs to the Phyſitian: we here onely ſeek after particular remedies which may ſmooth the face, and take away the ſpots, and other defects thereof, and give it a laudible colour.

Waters wherewith to waſh the face.

Firſt the face ſhall be waſhed with the water of lilly flowers, of bean flowers, water lillies, of diſtilled milke, or elſe with the water wherein ſome barly or ſtarch hath bin ſteeped. The dryed face ſhall be anointed with the ointments preſently to be deſcribed; for ſuch waſhing cleanſeth and prepareth the face to receive the force of the ointments, no otherwiſe than an alumed lye prepares the haires to drinke up and retaine the colour that wee deſire. Therefore the face being thus cleanſed and prepared, you may uſe the following medicines, as thoſe that have a faculty to beautifie, extend, and ſmooth the ſkinne: as,

Compound liquors wherewith to waſh the face.

Virgins milke.

℞. *gum. tragacanth. conquaſſ.* ʒ ii. *diſtemperentur in vaſe vitrio cum* ℔ ii. *aquæ communis, ſic gummi diſſolventur, inde albeſcet aqua.* Or elſe, ℞. *lithargyri auri,* ℥ ii. *ceruſ. & ſalis com. an.* ℥ ß. *aceti, aquæ plantag. an.* ℥ ii. *caphur.* ʒ ß. *macerentur lithargyros & ceruſa in aceto ſeorſim per tres aut quatuor horas, ſal vero & camphora in aqua quam inſtituto tuo aptam delegeris:* then filter them both ſeverall, and mixe them together being ſo filtred, when as you would uſe them.

℞. *lactis vaccini,* ℔ ii. *aranciorum & limon. an.* nu. iv. *ſacchari albiſſimi, & alum. roch. an.* ʒ i. *diſtillentur omnia ſimul:* let the lemmons and oranges bee cut into ſlices, and then be infuſed in milk, adding thereto the ſugar and alome; then let the mall be diſtilled together in *balneo Mariæ*; the water that comes thereof will make the face ſmooth and lovely. Therefore about bed time it will be good to cover the face with linnen cloaths dipped therein. A water alſo diſtilled of ſnailes gathered in a vineyard, juice of lemmons, the flowres of white mullaine, mixed together in equall proportion, with a like quantity of the liquor contained in the bladders of elme leaves, is very good for the ſame purpoſe. Alſo this,

℞. *micæ panis albi,* ℔ iv. *flor. fabar. roſar. alb. flor. nænuph. lilior. & ireos, an.* ℔ ii. *lactis vaccini,* ℔ vi. *ova.* nu. viii. *aceti opt.* ℔ i. *diſtillentur omnia ſimul in alembico vitreo, & fiat aqua ad faciei & manuum lotionem.* Or, ℞. *olei de tartaro,* ℥ iii. *mucag. ſem. pſilii,* ℥ i. *ceruſ. in oleo roſ. diſſolut.* ℥ i ß. *borac. ſal. gem. an.* ʒ i. *fiat linimentum pro facie.* Or. ℞. *caponem vivum, & caſeum ex lacte caprino recenter confectum, limon.* nu. iv. *ovor.* nu. vi. *ceruſ. lot. in aq. roſar.* ℥ ii. *boracis,* ℥ i ß. *camph.* ʒ ii. *aq. flor. fabar.* ℔ iv. *fiat omnium infuſio per* xxiv. *horas, poſtea diſtillentur in alembico vitreo.*

The marrow of ſheeps bones good to ſmooth the face.

There is a moſt excellent *fucus* made of the marrow of ſheepes-bones, which ſmooths the roughneſſe of the ſkinne, beautifies the face; now it muſt be thus extracted. Take the bones, ſevered from the fleſh by boyling, beat them, and ſo boyle them in water, when they are well boyled, take them from the fire, and when the water is cold, gather the fat that ſwimmes upon it, and therewith anoint your face when as you goe to bed, and waſh it in the morning with the formerly preſcribed water.

How to make *Salceruſſæ*,

℞. *ſalis ceruſſ.* ʒ ii. *ung. citrin. vel ſpermat. ceti,* ℥ i. *malaxentur ſimul, & fiat linimentum, addendo olei ovor.* ʒ ii. The *Sal ceruſſæ* is thus made, grinde Ceruſſe into very fine powder, and infuſe ℔ i. thereof in a pottle of diſtilled vinegar for foure or five dayes, then filter it, then ſet that you have filtred in a glaſed earthen veſſell over a gentle fire untill it concrete into ſalt, juſt as you doe the *capitellum* in making of Cauteries.

℞. *excrementi lacert. oſſis ſepiæ, tartari, vini albi, raſur. corn. cerv. farin. oriz. an. partes æquales, fiat pulvis, infundatur in aqua diſtillata amygdalarum dulcium, limacum* *vinealium, flor. nenuph. huic addito mellis albi par pondus* : let them be all incorporated in a marble mortar, and kept in a glaſſe or ſilver veſſell, and at night anoint the face herewith; it wonderfully prevailes againſt the redneſſe of the face, if after the anointing it you ſhall cover the face with a linnen cloath moiſtened in the formerly deſcribed water.

℞. *ſublim.* ʒ i. *argent. viv. ſaliv. extinct.* ʒ ii. *margarit. non perforat.* ʒ i. *caph.* ʒ iß. *incorporentur ſimul in mortario marmoreo, cum piſtillo ligneo, per tres horas ducantur & fricentur, reducanturque in tenuiſſimum pulverem, confectus pulvis abluatur aqua myrti & deſiccetur, ſerveturq; ad uſum, adde foliorum auri & argenti,* nu. x. When as you would uſe this powder, put into the palme of your hand a little oile of maſtick, or of ſweet almonds, then preſently in that oyle diſſolve a little of the deſcribed powder, and ſo work it into an ointment, wherewith let the face be anointed at bed-time: but it is fit firſt to waſh the face with the formerly deſcribed waters, and againe in the morning when you riſe.

How to paint the face.

When the face is freed from wrinkles and ſpots, then may you paint the cheekes with a roſie and flouriſhing colour; for of the commixture of white and red ariſeth a native and beautifull colour: for this purpoſe take as much as you ſhall thinke fit of braſill, and alchunet; ſteep them in alume water, and therewith touch the cheeks and lips, and ſo ſuffer it to dry in: there is alſo ſpaniſh red made for this purpoſe; others rub the mentioned parts with a ſheeps ſkinne died red: moreover the friction that is made by the hand onely, cauſeth a pleaſing redneſſe in the face, by drawing thither the blood and ſpirits.

CHAP. XLV.

Of the Gutta Roſacea, *or a fiery face.*

THis treatiſe of *Fuci* puts me in minde to ſay ſomething in this place of helping the preternaturall redneſſe which poſſeſſeth the noſe and cheekes, and oft times all the face beſides, one while with a tumour, other whiles without, ſometimes with puſtles and ſcabs, by reaſon of the admixtion of a nitrous and aduſt humor. Practitioners have termed it *Gutta roſacea.* This ſhewes both more and more ugly in winter than in ſummer, becauſe the cold cloſeth the pores of the ſkinne, ſo that the matter contained thereunder is pent up for want of tranſpiration, whence it becomes acrid and biting, ſo that as it were boiling up, it lifts or raiſeth the ſkinne into puſtles and ſcabs; it is a contumacious diſeaſe, and oft times not to be helped by medicine.

Why worſe in winter than in ſummer.

Diet.

For the generall method of curing this diſeaſe, it is fit that the patient abſtaine from wine, and from all things in generall that by their heat inflame the blood, and diffuſe it by their vaporous ſubſtance: he ſhall ſhunne hot and very cold places, and ſhall procure that his belly may be ſoluble, either by nature or art. Let blood firſt be drawn out of the *baſilica*, then from the *vena frontis*, and laſtly from the vein of the noſe. Let leaches be applied to ſundry places of the face, and cupping glaſſes with ſcarification to the ſhoulders.

Remedies.

For particular or proper remedies, if the diſeaſe be inveterate, the hardneſſe ſhall firſt be ſoftned with emollient things, then aſſaulted with the following ointments, which ſhall be uſed or changed by the Chirurgian as the Phyſitian ſhall thinke fit.

An approved ointment.

℞. *ſucci citri,* ℥ iii. *ceruſ. quantum ſufficit ad eum inſpiſſandum, argenti vivi cum ſaliva & ſulphure vivo extincti,* ʒ ß. *incorporentur ſimul, & fiat unguentum.*

℞. *boracis,* ʒ ii. *farin. cicer. & fabar. an.* ʒ i ß. *caph.* ʒ i. *cum melle & ſucco cepæ fiant trochiſci* : when you would uſe them, diſſolve them in roſe and plantaine water, and ſpread them upon linnen cloaths, and ſo apply them on the night time to the affected parts, and ſo let them be oft times renued.

℞. *unguenti citrini recenter diſpenſati,* ℥ ii. *ſulphuris vivi,* ℥ ß. *cum modico olei ſem. cucurb. & ſucci limonum, fiat unguentum*; with this let the face be anointed when you goe to bed, in the morning let it bee waſhed away with roſe water, being white by reaſon of bran infuſed therein: moreover, ſharp vinegar boyled with branne and roſe water, and applied as before, powerfully takes away the redneſſe of the face.

℞. *ceruſ. & litharg. auri, ſulphuris vivi pulveriſati, an.* ℥ ß. *ponantur in phiala cum aceto & aqua roſarum:* linnen cloaths dipped herein ſhall be applied to the face on the night, and it ſhall bee waſhed in the morning with the water of the infuſion of bran: this kinde of medicine ſhall be continued for a moneth.

℞. *ſanguinis tauri,* ℔ i. *butyri recentis,* ℔ ß. *fiat diſtillatio, utatur.* The liquor which is diſtilled for the firſt daies is troubled and ſtinking, but theſe paſſed, it becommeth cleare and well ſmelling. Some boile bran in vinegar and the water of water lillies, and in this decoction they diſſolve of *ſulphur* and camphire a fit proportion to the quantity of the decoction, and they apply cloaths moiſtened in this medicine to the face in the evening.

To dry up the puſtles.

♃. *album. ovor.* nu. ii. *aquæ roſ.* ℥ i ß. *ſucci plantag. & lapath. acut. an.* ℥ i ß. *ſublimati,* ℈ i. *incorporentur in mortario marmoreo.* ℞. *axung. porci decies in aceto lotæ,* ℥ iv. *argenti vivi,* ℥ i. *aluminis, ſulphuris vivi, an.* ʒ i. *piſtentur omnia diu in mortario plumbeo, & fiat unguentum; argentum vivum non debet niſi extremo loco affundi.* ℞. *rad. lapath. acut. & aſphodel. an.* ℥ ii. *coquantur in aceto ſcillitico, poſtea tundantur, & ſetaceo trajiciantur, addendo auripigmenti,* ʒ ii. *ſulphuris vivi,* ʒ x. let them be incorporated and make an ointment to be uſed to dry up the puſtles.

♃. *rad. liliorum ſub cineribus coctorum,* ℥ iv. *piſtillo tuſis, & ſetaceo trajectis, adde butyri recentis, & axung. porci, lotæ in aceto, an.* ℥ i. *ſulphuris vivi,* ʒ iii. *camphor.* ℈ iii. *ſucci limonum quantum ſufficit, malaxentur ſimul & fiat unguentum.* ℞. *lactis virginalis,* ℔ ß. *aluminis,* ℥ ß. *ſulphuris vivi,* ℥ i. *ſucci limonum,* ℥ vi. *ſalis com.* ʒ ß. let them all be diſtilled in a glaſſe alembicke, and the water kept for the forementioned uſes.

℞. *lapath. acut. plantagin. & aſphodel. an.* ℥ i ß. *olei vitel. ovor.* ℥ i. *terebinth. venet.* ℥ ß. *ſucci limonum,* ʒ iii. *aluminis combuſt.* ʒ i. *argenti vivi extinct.* ℥ i. *olei liliorum,* ℥ ß. *tundantur omnia in mortario plumbeo, addendo ſub finem argent. viv. ne mortario adhæreſcat.* The juice of onions beaten with ſalt, or the yelkes of egges are good for the ſame purpoſe.

To kill tettars.

For ſtaying and killing of Ring-wormes and Tettars, the leaves of hellebore beaten with vinegar are good, the milke of the fig-tree is good of it ſelfe, as alſo that of the ſpurges, or muſtard diſſolved in ſtrong vinegar with a little ſulphur. Or,

♃. *ſulphuris, calcanthi, & aluminis, an.* ʒ i. *macerentur in aceto forti, trajiciantur per linteum,* apply the expreſſed juice. Others macerate an egge in ſharpe vinegar, with coporoſe and *ſulphur vivum* beaten into fine powder, then they ſtraine or preſſe it through a linnen cloath.

But ſeeing the forementioned medicines are acride, and for the moſt part eating and corroding, it cannot bee but that they muſt make the ſkinne harſh and rough, therefore to ſmooth and levigate it againe, you ſhall make uſe of the following ointment.

To ſmooth the ſkinne.

℞. *tereb. ven. tam diu lotæ, ut acrimoniam nullam habeat, butyri ſalis expertis, an.* ℥ i ß. *olei vitel. ovor.* ℥ i. *axung. porci in aqua roſarum lotæ,* ℥ ß. *ceræ parum, fiat linimentum ad uſum.* To the ſame purpoſe you may alſo make uſe of ſome of the forementioned medicines.

CHAP. XLVI.

To blacke the haire.

AT firſt the haires, (to take the *fucus* or tincture, and to retaine it) muſt be prepared with Lye, wherein a little roche Alome is diſſolved. Thus the fatty ſcales may be waſhed and taken away, which hinder, and (as it were) keep away the *fucus*, that it cannot adhere or penetrate into the body of the haire. Then muſt we come to particular or proper & fitting medicines, What things are fit to dy the haire.

for this purpoſe. Theſe ought to be aromaticke and cephalicke, and ſomewhat ſtiptick, that by their odoriferous and aſtringent power they may ſtrengthen the animal faculty: Furthermore, they muſt be of ſubtle parts, that they may enter even into the inner rootes of the haires.

℞. *Sulphuris, vitrioli, gallarum, calcis vivæ, lithargyri, an.* ʒii. *ſcoriæ ferri,* ʒß. *in pollinem reducantur, & cum aq. communi incorporentur, ut inde fiat maſſa*: with this at bed time let the haires bee rubbed, and in the morning let them bee ſmoothed with the ſame.

℞. *calcis lotæ,* ℥i. *lithargyri utriuſq;* ℥ß. *cum decocto gallarum, corticum, nucum, fiat maſſa, addendo olei chamem.* ʒ ii. ℞. *lytharg. auri,* ℥ ii. *ciner. clavellat.* ℥ i ſß. *calcis viv.* ʒ i. *diſſolve omnia cum urena hominis donec acquirant conſiſtentiam unguenti pro unctione capillorum.* ♃. *calcis lotæ,* ℥ iv. *lithargyri utriuſq; an.* ℥ ii. *cum decoct. ſalv. & cort. granat. fiat paſta ad formam pultis ſatis liquidæ*: let the haire at bed time bee died herewith, and waſhed in the morning with wine and water.

How to waſh Lime.

Now the manner of waſhing lime is thus: Infuſe in ten or twelve pints of faire water one pound of lime, then poure out the water by ſtooping the veſſell, putting more in the ſtead thereof; the third time in ſtead of common water powre thereon the water of the decoction of ſage and galls, let the lime lye therein for ſo many houres, then in like manner powre it off by ſtooping the veſſell; and thus you ſhall have your lime well waſhed. There is alſo found a way how to die or black the haire by only powring of ſome liquor thereon: as, ♃. *argenti puriſſimi,* ʒ ii. *reducantur in tenuiſſimas laminas, ponantur in ampulla vitrea cum* ʒii. *aquæ ſeparationis auri & argenti, & aquæ roſar.* ʒ vi. The preparing of this water is thus, put into a violl the water of ſeparation and the ſilver, and ſet it upon hot coales ſo to diſſolve the ſilver, which being done then take it from the fire, and when it is cold, adde thereto the roſe water. But if you would black it more deeply, adde more ſilver thereto, if leſſe, then a ſmaller quantity; to uſe it, you muſt ſteepe the combe wherewith you combe your head in this water.

A water to black the haire.

℞. *plumbi uſti,* ℥ ii. *gallarum non perforat. cortic. nucum, an.* ℥ iii. *terræ ſigil. ferret. hiſpan. an.* ℥ ii. *vitriol. rom.* ℥ vi. *ſalis gem.* ℥ i ß. *caryoph. nucis moſch. an.* ℥ i. *ſalis ammon. aloes, an.* ʒ ß. *fiat pulvis ſubtiliſſimus*: let this powder be macerated in vinegar for three daies ſpace, then diſtill it all in an alembick, the water that comes therefrom is good for the foreſaid uſe. The following medicine is good to make the haires of a flaxen colour. ♃. *flor. geniſt. ſtæchad. & cardamom. an.* ℥ i. *lupinor. conquaſſat. raſur. buxi, corticis citri, rad. gentian. & berber. an.* ℥ i ß. *cum aqua vitri fiat lenta decoctio*: herewith bathe and moiſten the haires for many dayes.

To make the haire of a flaxen colour.

Chap. XLVII.

Of Pſilothra, *or Depilatories: and alſo of Sweet waters.*

A depilatory.

Medicines to fetch off haire, which by the Greeks are termed *Pſilothra*, and *Depilatoria* in latine vulgarly, are made as you may learn by theſe following examples. ℞. *calcis vivæ,* ℥ iii. *auripigmenti,* ℥i. let the lime bee quencht in faire water, and then the orpiment added with ſome aromaticke thing: have a care that the medicine lye not too long upon the part, otherwiſe it will burne; and this medicine muſt bee made to the conſiſtence of a pultis and applied warme, firſt fomenting the part with warme water; for then the haire will fall off by gentle rubbing or waſhing it with warme water: but if there happen any excoriation thereupon, you may helpe it by the uſe of *unguentum roſatum*, or ſome other of the like faculty.

Another.

℞. *calcis viv. aurip. citrin. an.* ℥i. *amyl. ſpumæ argent. an.* ℥ ß. *terantur & incorporentur cum aq. com. & bulliant ſimul*: you ſhall certainly know that it is ſufficiently boiled, if putting thereinto a gooſes quill, the feathers come preſently off: ſome make into powder equall parts of unquencht lime and orpiment, they tye them up in a cloath, with which being ſteeped in water they beſmear the part, and within a while after by gently ſtroaking the head, the haire falls away of it ſelfe. The following waters are very fitting for to waſh the hands, face, and whole body, as alſo linnen, becauſe they yeeld a gratefull ſmell: the firſt is lavander water thus to be made. ℞. *flor. lavend.* ℔ iv. *aq. roſar. & vini alb. an.* ℔ ii. *aq. vitæ*, ℥ iv. *miſceantur omnia ſimul, & fiat diſtillatio in balneo Mariæ:* this ſame water may alſo bee had without diſtillation, if you put ſome lavander flowers in faire water, and ſo ſet them to ſunne in a glaſſe, or put them in *balneo*, adding a little oile of ſpike and muske. Clove water is thus made: ℞. *caryoph.* ℥ ii. *aq. roſar.* ℔ ii. *macerentur ſpatio* xxiv. *horarum, & diſtillentur in balneo Mariæ.* Sweet water commonly ſo called, is made of divers odoriferous things put together; as thus, ℞. *menthæ, majoranæ, hyſſopi, ſalviæ, roriſmarini, lavendulæ, an.* m ii. *radicis ireos*, ℥ ii. *caryophylorum, cinamomi, nucis moſchatæ, ana*, ℥ ß. *limonum*, num. iv. *macerentur omnia in aqua roſarum, ſpatio viginti quatuor horarum, diſtillentur in balneo Mariæ, addendo Moſchi*, ℈ ß.

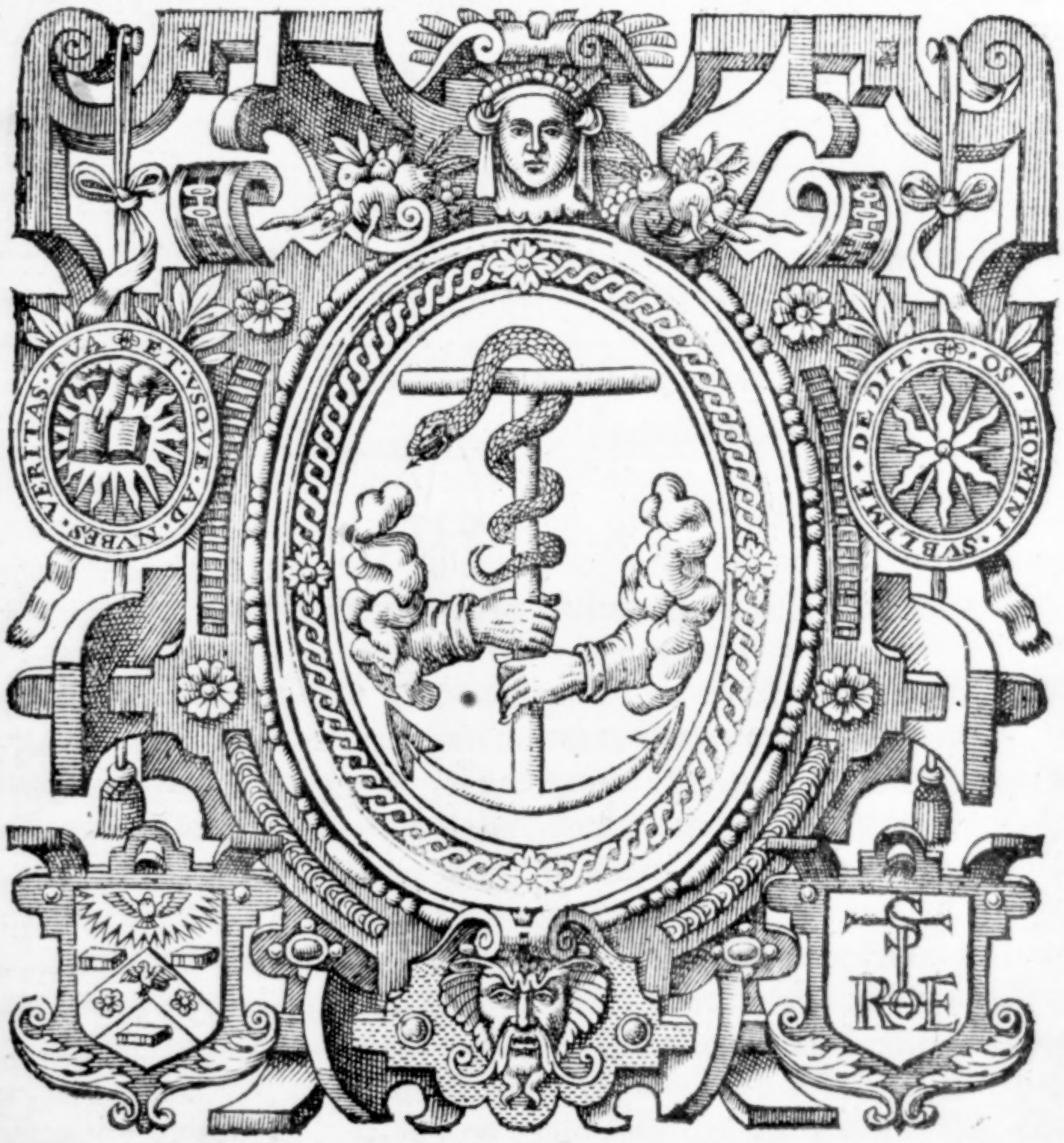
Sweet waters.

Lavander water.

Clove water.

Sweet water.

The End of the Twenty ſixt Booke.


VERITAS TVA ET VSQVE AD NVBES
DEDIT OS HOMINI SVBLIME
S
R E

OF DISTILLATIONS.

THE TVVENTIEIGHTH BOOKE.

CHAP. I.

What Diſtillation is, and how many kinds thereof there be.

HAving finiſht the Treatiſe of the faculties of medicines, it now ſeemes requiſite that we ſpeake ſomewhat of Chymiſtry and ſuch medicines as are extracted by fire. Theſe are ſuch as conſiſt of a certaine fift eſſence ſeparated from their earthy inpurity by Diſtillation, in which there is a ſingular, and almoſt divine efficacy in the cure of diſeaſes. So that of ſo great an aboundance of the medicines there is ſcarſe any which at this day Chymiſts doe not diſtill, or otherwiſe make them more ſtrong and effectuall than they were before. Now Diſtillation is a certaine art or way by which the liquor or humid part of things, by the vertue and force of fire or ſome ſemblable heate (as the matter ſhall ſeeme to require) is extracted and drawne, being firſt reſolved into vapour and then condens'd againe by cold. Some call this art *Sublimation* or ſubliming, which ſignifies nothing elſe but to ſeparate the pure from the unpure; the parts that are more ſubtle and delicate, from thoſe that are more corpulent, groſſe and excrementitious; as alſo to make thoſe matters whoſe ſubſtance is more groſſe, to become more pure and ſincere, eyther for that the terreſtriall parts are ill united and conjoyned, or otherwiſe confuſed into the whole and diſperſed by the heate and ſo carried up, the other groſſer parts remaining together in the bottome of the veſſell. Or a diſtillation is the extraction or effuſion of moiſture diſtilling drop by drop from the noſe of the Alembecke or any ſuch like veſſells. Before this effuſion or falling downe of the liquor there goes a certaine concoction performed by the vertue of heate; which ſeparates the ſubſtances of one kind from thoſe of another that were confuſedly mixed together in one body, and ſo brings them into one certaine forme or body, which may be good and profitable for divers diſeaſes. Some things require the heate of a cleare fire, others a flame, others the heate of the Sunne, others of Aſhes or ſand or the filings of Iron; others horſe dung, or boyling water or the oiely vapour or ſteame thereof. In all theſe kinds of fires, there are foure conſiderable degrees of heate. The firſt is conteined in the limits of warmth, and ſuch is warme water, or the vapour of hot water. The ſecond is a little hotter, but yet ſo as the hand may abide it without any harme, ſuch is the heate of Aſhes. The third exceeds the vehemency of the ſecond, wherefore the hand cannot long endure this without hurt, and ſuch is the heate of ſand. The fourth is ſo violent, that it burneth any thing that commeth neare, and ſuch are the filings of Iron.

What diſtillation is.

Foure degrees of heate.

The firſt degree is moſt convenient to diſtill ſuch things as are ſubtle and moiſt as flowers. The ſecond ſuch as are ſubtle and dry as thoſe things which are odoriferous and aromaticall, as Cinnamon, Ginger, Cloves. The third is fitteſt to diſtill ſuch things are of a more denſe ſubſtance and fuller of juice; ſuch as are ſome Roots, and

What heate fitteſt for what things.

gummes. The fourth is fit for mettalls and mineralls as, Allum, Vitrioll, Amber, Iet, &c. In like manner you may alſo diſtill without heate; as wee uſe to doe in thoſe things which are diſtilled by ſtraining, as when the more pure is drawne and ſeparated from that which is moſt unpure and earthy, as wee doe in *Lac Virginale*, and other things which are ſtrained through an hypocras bag, or with a peece of cloath cut in the forme of a tongue, or by ſetling, or by a veſſell made of Ivy wood: ſometimes alſo ſomethings may bee diſtilled, by coldneſſe and humidity, and ſo we make the oile of Tartar, Myrrhe and Vitriolls, by laying them upon a marble in a cold and moiſt place.

Chap. II.

Of the matter and forme of Fornaces.

The matter the beſt for Fornaces.

THe matter and forme of Fornaces uſes to bee divers. For ſome Fornaces uſe to bee made of brickes and clay, otherſome of clay onely, which are the better and more laſting, if ſo bee the clay bee fat and well tempered with whites of Egges and haire. Yet in ſuddaine occaſions when there is preſent neceſſity of diſtillation, fornaces may be made of bricks, ſo laid together that the joynts may not agree, but be unequall, for ſo the ſtructure will be the ſtronger. The beſt and fitteſt forme of a Fornace for diſtillation is round; for ſo the heate of the fire carried up equally diffuſes it ſelfe every way, which happens not in a Fornace of another figure, as ſquare or triangular, for the corners diſperſe and ſeparate the force of the fire. Their magnitude muſt bee ſuch as ſhall bee fit for the receiving of the veſſell. For their thickneſſe, ſo great as neceſſity ſhall ſeeme to require. They muſt be made with two bottomes, diſtinguiſht as it were into two forges, one below which may receive the aſhes of the coales or the like other fuell, the other above to containe the burning coales or fire. The bottome of this upper muſt eyther bee an iron grate, or elſe it muſt bee perforated with many holes, that ſo the aſhes may the more eaſily fall downe into the bottome, which otherwiſe would extinguiſh the fire; yet ſome Fornaces have three partitions, as the Fornace for reverberation. In the firſt and loweſt the aſhes are received, in the ſecond the coales are put, & in the third the matter which is calcin'd or elſe diſtilled. The third ought to have a ſemicircular cover, that ſo the heate or flame may bee reflected upon the contained matter. The lower partition ſhall have one or more dores, by which the fallen downe aſhes may bee taken forth. But the upper muſt have but one, whereby the coales or wood may be put in. But in the top or upper part of the Fornace where it ſhall ſeeme moſt fit, there ſhall be two or three holes made, that by them you may blow the fire and that the ſmoake may more freely paſſe out. But theſe forementioned dores muſt have their ſhutters, juſt like an ovens mouth. But in defect of a fornace or fit matter to build one withall, wee may uſe a kettle, ſet upon a trefoote after the manner that wee ſhall preſently declare when wee come to ſpeake of that diſtillation which is to bee made by *Balneum Mariæ*.

A round forme the beſt for Fornaces.

Chap. III.

Of veſſells fit for Diſtillation.

VEſſells for Diſtillation conſiſt of different matter and forme, for they are eyther of Lead, Tinne or Braſſe, or elſe earthen veſſells and theſe are ſometimes leaded, ſometimes not: or elſe they are of Gold, ſilver,

ſilver or glaſſe. Now for leaden veſſells they are worſe than the reſt, and utterly to be refuſed, eſpecially when as the liquors which are drawne by them are to bee taken into the body by the mouth, by reaſon of the maligne qualities which are ſaid to be in Lead; by which occaſion, *Galen* condemnes thoſe waters which runne, and are contained in Leaden pipes, which by reaſon of their ſaltiſhneſſe and acrimony which ſavours of quickſilver, they cauſe dyſenteries. Therefore you may perceive ſuch waters as are diſtilled through a leaden head to bee endued with a more acrid and violent piercing vapour, by reaſon the portion of that ſaltiſhneſſe diſſolved in them, & as it were ſhaved from the top of the Alembecke or head, defiles the diſtilled liquors, and whitens and turnes them into a milky ſubſtance: but copper or braſſe heads are more hurtfull than Lead, for they make the waters that come through them to ſavour or participate of braſſe. Thoſe that are of gold and ſilver are leſſe hurtfull; but the greatneſſe of the coſt hinders us from making heads of ſuch mettalls; therefore we muſt have a care that our veſſells for diſtillation be eyther of potters mettall leaded, or elſe of braſſe, or of that jugge mettall which is commonly called *terra betovacenſis*, and theſe rather than of Lead, or any other mettall. Verily glaſſes are thought the beſt; and next to them, earthen veſſells leaded, then of jugge mettall, and laſtly theſe of tinne. There is great variety of veſſells for diſtillation in forme and figure; for ſome are of an ovall or cilindricall figure, that is, of a round and longiſh; others are twined and crooked, others of other ſhapes, as you may ſee in the beakes of the Chimicks. Of this almoſt infinite variety of figures I will in fit place give you the delineation and uſe of ſuch as ſhall ſeeme to bee moſt neceſſary.

Leaden veſſells ill.

Braſſe worſe.

The beſt veſſells for diſtillation.

CHAP. IIII.

What things are to be conſidered in diſtillation.

FIrſt make choyſe of a fit place in your houſe for the fornace, ſo that it may neither hinder any thing, nor be in danger of the falling of any thing that ſhall lye over it. When you ſhall diſtill any thing of a maligne or venenate quality, ye ſhall ſtand by it as little as you may, leaſt the vapour ſhould doe you any harme: when you provide glaſſe veſſells for diſtillation, make choice of ſuch, as are exquiſitely baked, without flawes or crackes, and ſuch as are every where ſmooth. Let not the fire at firſt be very violent, not onely for feare of breaking the veſſells, but alſo for that the firſt fire in diſtillation muſt be gentle, and ſo increaſed by little and little. The things to be diſtilled, ought not to be put in too great quantity into the body of the ſtill, leaſt they ſhould riſe up or fly over. Hot things, that they may be more effectuall muſt bee twice or thriſe diſtilled, by powring upon them their owne diſtilled water or other freſh materialls, or elſe by diſtilling them ſeverally and by themſelves: of this kind are gummes, waxe, fatts, or oyles.

Hot things muſt bee often diſtilled.

But in each other repeated diſtillations you muſt ſomething leſſen the force of the fire, for the matter attenuated by the former diſtillation cannot afterward indure ſo great heate: but aromaticke things, as Cloves, Cinnamon, &c. as alſo the chimicall oyles of Sage, Roſemary, Time, &c. ought not to bee diſtilled or rectified over againe, for that we muſt preſently after the firſt diſtillation have a diligent care to ſeparate them from the phlegme, that is, the more watry ſubſtance of the whole liquor, to which purpoſe we muſt have regard to that which is diſtilled, for there are ſome things which firſt ſend over their phlegme as Vinegar, others, wherein it comes laſt, as * *aqua vita*.

* By *Aqua vita* in this and moſt other places is meant nothing but the ſpirit of wine.

If you would give to things to bee diſtilled another taſte or ſmell than that which they have naturally, you may mixe with them ſome odoriferous thing, as Cinnamon, Camphire, or Muske, or the like, as you pleaſe, and ſo diſtill them together. The diſtilled liquors which are drawne by the heate of aſhes or ſand, ſavour of and retaine a certaine *empyreuma*, or ſmatch of the fire; for the helping of which, you ſhall put them into glaſſes very cloſe ſtopt, and ſo expoſe them to the ſunne, and now and then open the glaſſes that this fiery impreſſion may exhale, and the *phlegmon* be conſumed, if that there ſhall be any. But though in all diſtillation, there are many things to be obſerved, yet are there two things, chiefly worthy of note. The firſt is, the matter that is to be diſtilled and wrought upon, that is, of what kind it is, and what the nature thereof may doe and ſuffer. The other is the Fornace, which ought to bee provided of a convenient matter and figure for that which is to be diſtilled: for you cannot draw any thing of any matter, neither of every mixture being diſtilled can you rightly expect oyle or water. For mixt bodies doe not conſiſt of an equall portion of the foure Elements, but ſome are more aiery, others more fiery, ſome participate more of the water, others more of the earth, and that preſently from their firſt originall. Therefore as watry things yeeld more water, ſo aiery and fiery things yeeld more oyle when they are diſtilled; neither are all inſtruments fit for the extracting of every liquor. Moreover you muſt note, that the watery liquor ſometimes comes forth in the firſt place, and preſently after by the helpe of a ſtronger fire followes the oilely, which we finde happens as often as the plant or parts of the plants which are diſtilled, are of a cold temperament; for in hot things it happens otherwiſe, for the firſt liquor which comes forth is oilely, and the following wateriſh.

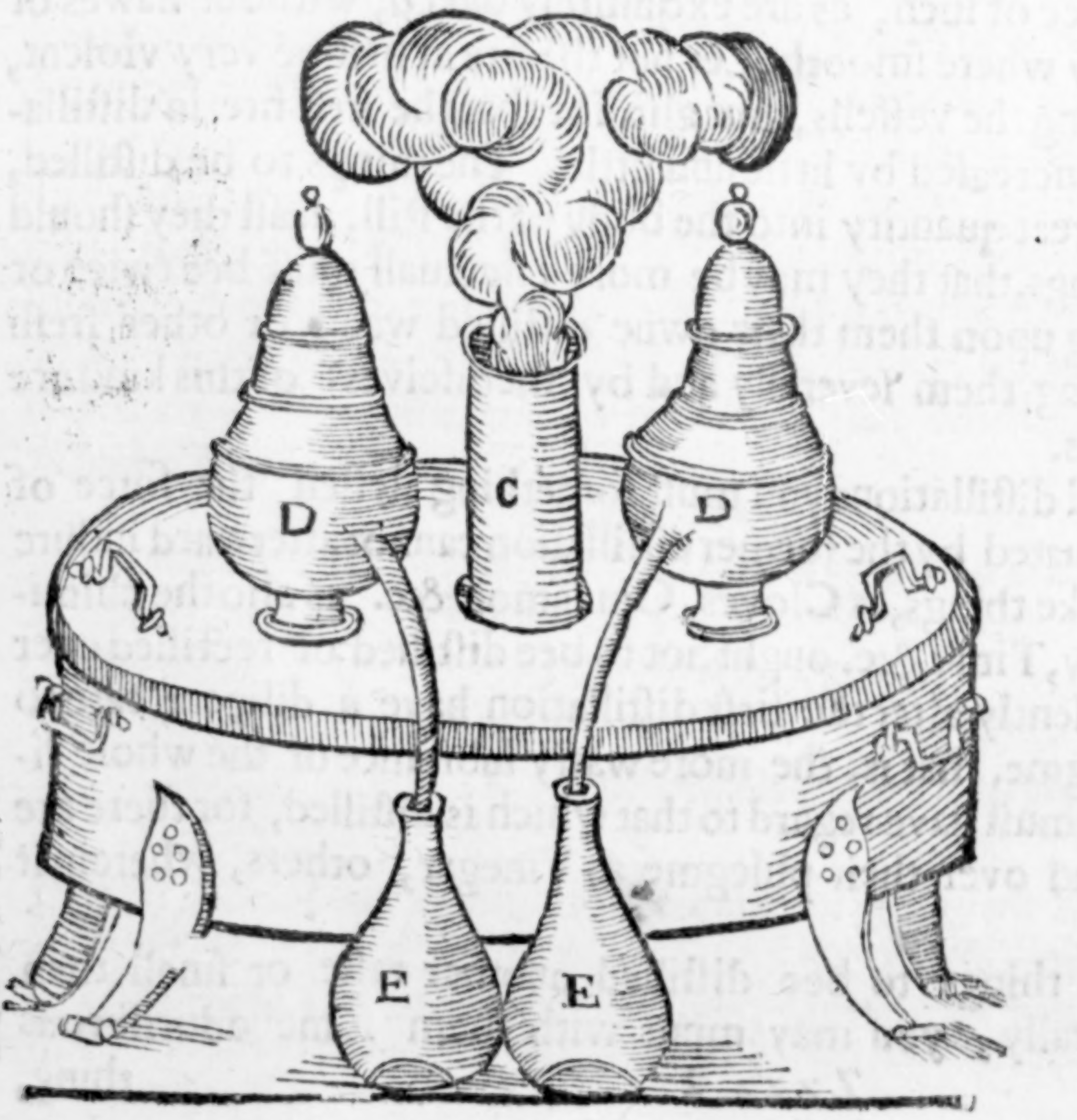
CHAP. V.

Of what faſhion the veſſells for the diſtilling of waters ought to be.

The parts of an Alembecke.

FOr the diſtilling of any kind of waters, two kind of veſſells are neceſſary, which are comprehended under this one generall name of an Alembecke. They call one of them the body, or containing veſſell, the other the head, that is, the cap or top wherein the aſcending vapours are condenſated or turned into water. It is called the head, becauſe it ſtands over the body, like as an head; from the head there comes out a pipe or noſe whereby the diſtilled liquor flowes drop by drop into the receiver, as you may ſee by the following figure:

The Fornace for a Balneum Mariæ *with the Alembeck, and their receivers.*



A. *Shewes a braſſe kettle full of water.*

B. *The cover of the kettle perforated in two places, to give paſſage forth to the Veſſells.*

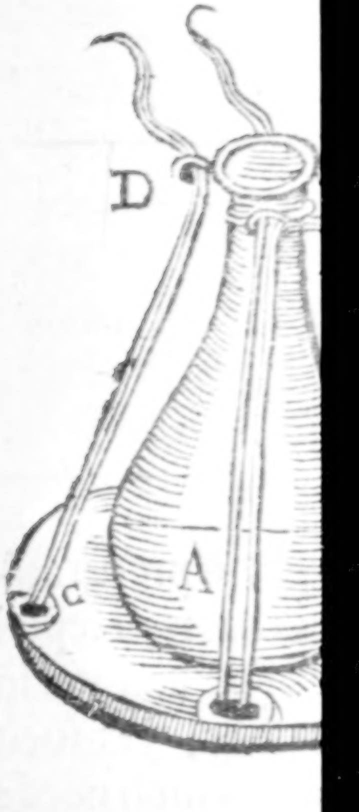
C. *A pipe or Chimney added to the kettle, wherein the fire is contained to heate the water.*

D. *The Alembecke conſiſting of his body and head.*

E. *The receiver whereinto the diſtilled liquor runs.*

The

The effigies

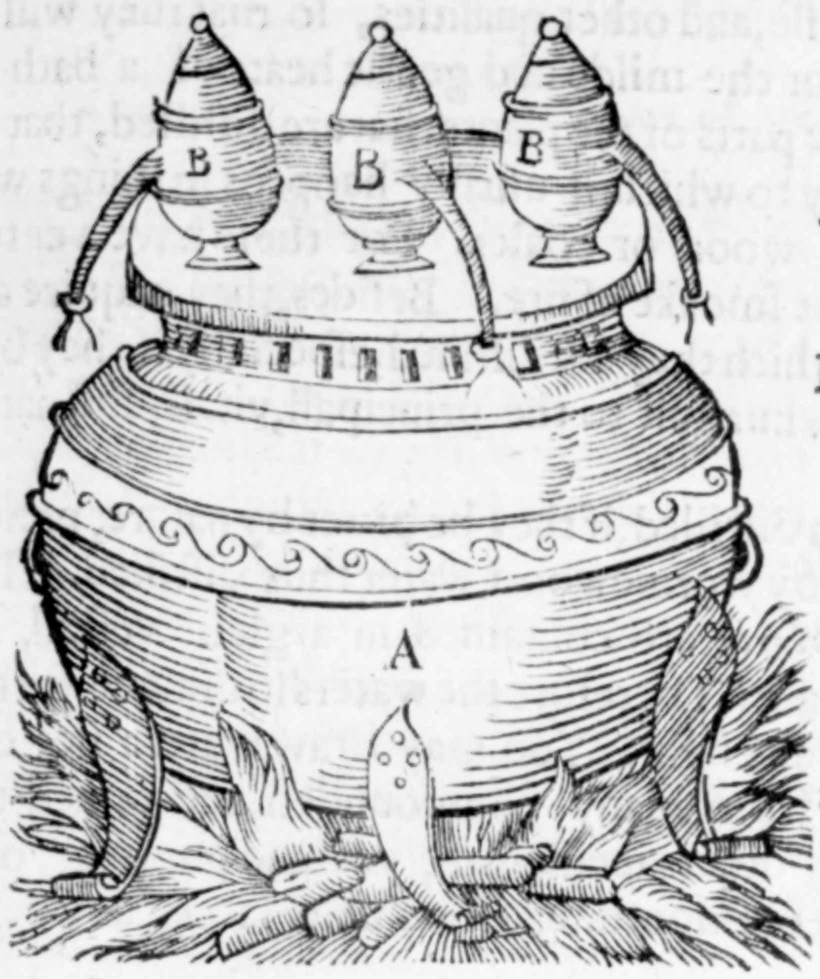


A Forna

Now for the

in *balne Maria*

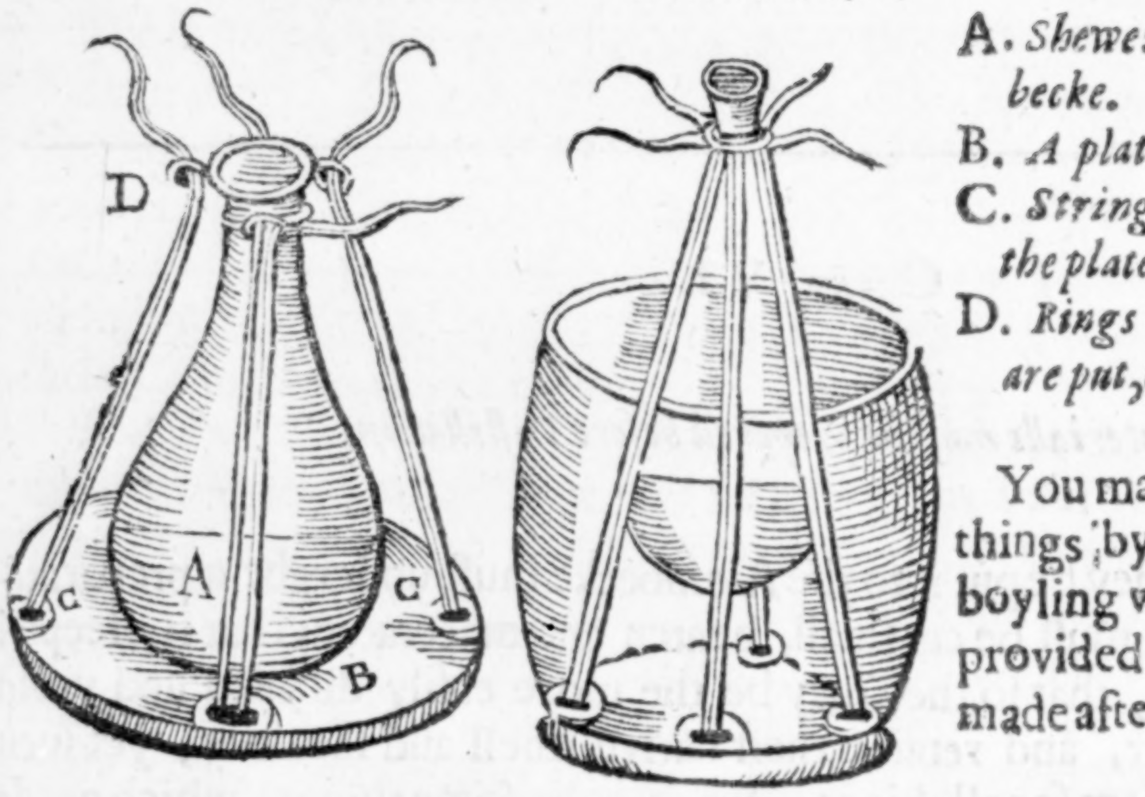
The effigies of another balneum Mariæ, *not ſo eaſy to be remooved as the former.*



A. *Shewes the veſſell or Copper that containes the water.*

B. *The Alembecke ſet in water.*

But leaſt the bottome of the Alembicke being halfe full, ſhould floate up and downe in the water, and ſo ſticke againſt the ſides of the Kettle; I have thought good to ſhew you the way and meanes to prevent that danger.



A. *Shewes the Veſſell or glaſſe Alembecke.*

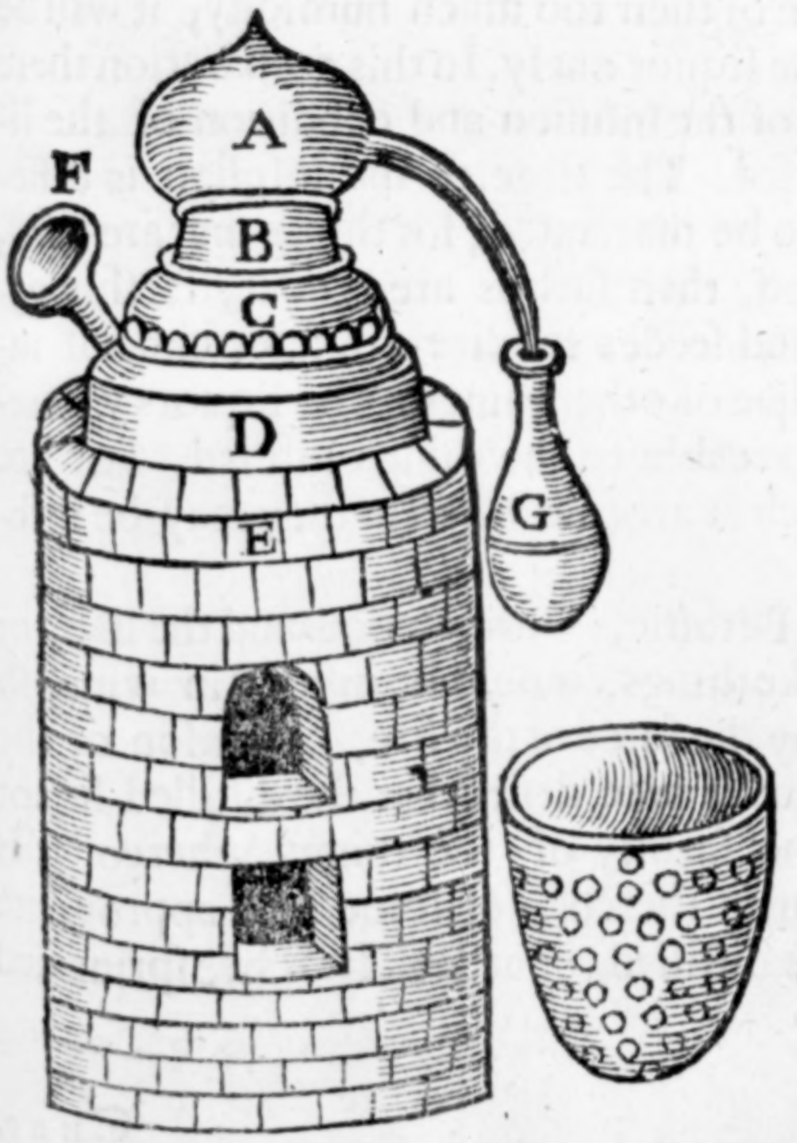
B. *A plate of Lead whereon it ſtands.*

C. *Strings that bind the Alembecke to the plate.*

D. *Rings through which the ſtrings are put, to faſten the Alembecke.*

You may alſo diſtill the liquors of things by the vapour or ſteame of boyling water, if ſo be that you bee provided of Veſſells and formes made after this following manner.

A Fornace with his veſſells to diſtill liquors with the ſteme of boyling water.



A. Shewes the head of the Alembecke.

B *The body thereof, placed in a braſſe veſſell made for that purpoſe.*

C. *A braſſe veſſell perforated in many places to receive the vapour of the water. This veſſell ſhall conteine th'Alembecke compaſſed about with ſawduſt, not onely that it may the better and longer retaine the heate of the vapour, but alſo leaſt it ſhould be broken by the hard touch of the braſen veſſell.*

D. *Shewes the braſſe veſſell containing the water as it is plac't in the Fornace.*

E. *The Fornace containing the veſſell.*

F. *A Funnell by which you may now and then powre in water, in ſtead of that which is vaſniſht and diſſipated by the heate of the fire.*

G. *The Receiver.*

Now for the faculties of diſtilled waters it is certaine, that thoſe which are drawne in *balne Mariæ* or a double veſſell, are farre better and efficacious, becauſe, they

Why thoſe things that are diſtilled in *Balneo* retaine more of the ſtrength of things.

doe not onely reteine the ſmell of the things which are diſtilled, but alſo the taſte, as acidity, harſhneſſe, ſweetneſſe, bitterneſſe, and other qualities, ſo that they will neither ſavour of ſmoake nor burning; for the milde and gentle heate of a bath containes by his humidity, the more ſubtle parts of the plants that are diſtilled, that they be not diſſipated and exhaled, contrary to which it uſually happens in things which are diſtilled by the burning heate of wood or coales. For theſe have a certaine nitrous and acrid taſte, ſavouring of the ſmoake of fire. Beſides, they acquire a maligne quality from the veſſells out of which they are diſtilled, eſpecially if they bee of Lead, whence they contract qualities hurtfull to the principall, vitall, and naturall parts.

Therefore the plants which are thus diſtilled, if they be bitter by nature, preſently become inſipid, as you may perceive by wormewood water thus diſtilled. Thoſe things which are diſtill'd in *Balneo Mariæ* are contained in a glaſſe veſſell, from which they can borrow no maligne quality. Therefore the waters ſo drawne are more effectuall and pleaſing in taſte, ſmell, and ſight. You may draw waters not onely from one kind of plant, but alſo from many compounded and mixed together: Of theſe ſome are alimentary, others medicinall, yea and purging; others acquir'd for ſmell, others for waſhing or ſmoothing of womens faces, as wee ſhall ſhew hereafter.

CHAP. VI.

How the materialls muſt be prepared before Diſtillation.

THings before they be put into the Alembecke muſt undergoe a preparation, that is, they muſt be cut ſmall, beaten and macerated, that is, ſteeped in ſome liquor, that ſo they may be the more eaſily diſtilled and yeeld the more water, and retaine their native ſmell and faculties; yet ſuch preparation is not convenient for all things; for there be ſome things, which neede no infuſion or maceration, but muſt rather bee dryed before they bee diſtilled, as Sage, Time, Roſemary, and the like, by reaſon of their too much humidity; it will be ſufficient to ſprinkle other things with ſome liquor onely. In this preparation there are two things obſervable, to wit, the time of the infuſion and condition of the liquor wherein theſe things ought to bee infuſed. The time of the infuſion is different according to the variety of the matter to be macerated; for things that are hard, ſolid, dry or whole, muſt be longer macerated, than ſuch as are tender, freſhly gathered or beaten: whence it is that rootes and ſeedes require a longer time of infuſion; flowers and leaves a ſhorter, and the like of other things. The liquors wherein infuſion muſt be made, ought to bee agreeable to the things infuſed. For hot ingredients require hot liquors, and cold ſuch as are cold wherein they may be infuſed.

What things neede not to be macerated before they bee diſſolved.

Such things as have not much juice, as Betonie, wormewood and the like, or which are very odoriferous, as all aromaticke things, would be infuſed in wine, ſo to preſerve their ſmell, which otherwiſe by the force of the fire, by reaſon of the tenuity of the ſubſtance, eaſily vaniſhes. But if wee deſire that the diſtilled liquor ſhould more exactly reteine and have the faculty of the things whereof it is diſtilled, then muſt you infuſe it in the juice thereof, or ſome ſuch appropriate liquor, that it may ſwimme in it whileſt it is diſtilled, or at leaſt let it bee ſprinckled therewith.

The maceration of plants in their owne juice.

CHAP. VII.

Of the art of diſtilling of waters.

BEfore I deſcribe the manner how to diſtill waters, I thinke it not amiſſe briefly to reckon up how many ſorts of diſtilled waters there bee, and what the faculties of them are. Therefore of diſtilled waters ſome are medicinall, as the waters of Roſes, Plantaine, Sorrell, Sage, and the like: others are alimentary, as thoſe waters that we call Reſtauratives; otherſome are compoſed of both, ſuch as are theſe reſtaurative waters which are alſo mixed with medicinall things; others are purging, as the diſtilled water of greene and freſh Rubarbe; otherſome ſerve for ſmoothing the skinne, and others for ſmell; of which ſort are thoſe that are deſtilled of aromaticke things.

The varieties of ſtilled waters.

To diſtill Roſe water, it will be good to macerate the Roſes before you diſtill them for the ſpace of two or three dayes, in ſome formerly diſtilled Roſewater, or their preſſed out juice, luting the veſſell cloſe; then put them into an Alembecke cloſely luted to his head and his receiver, and ſo put into a *Balneum Mariæ*, as wee have formerly deſcribed.

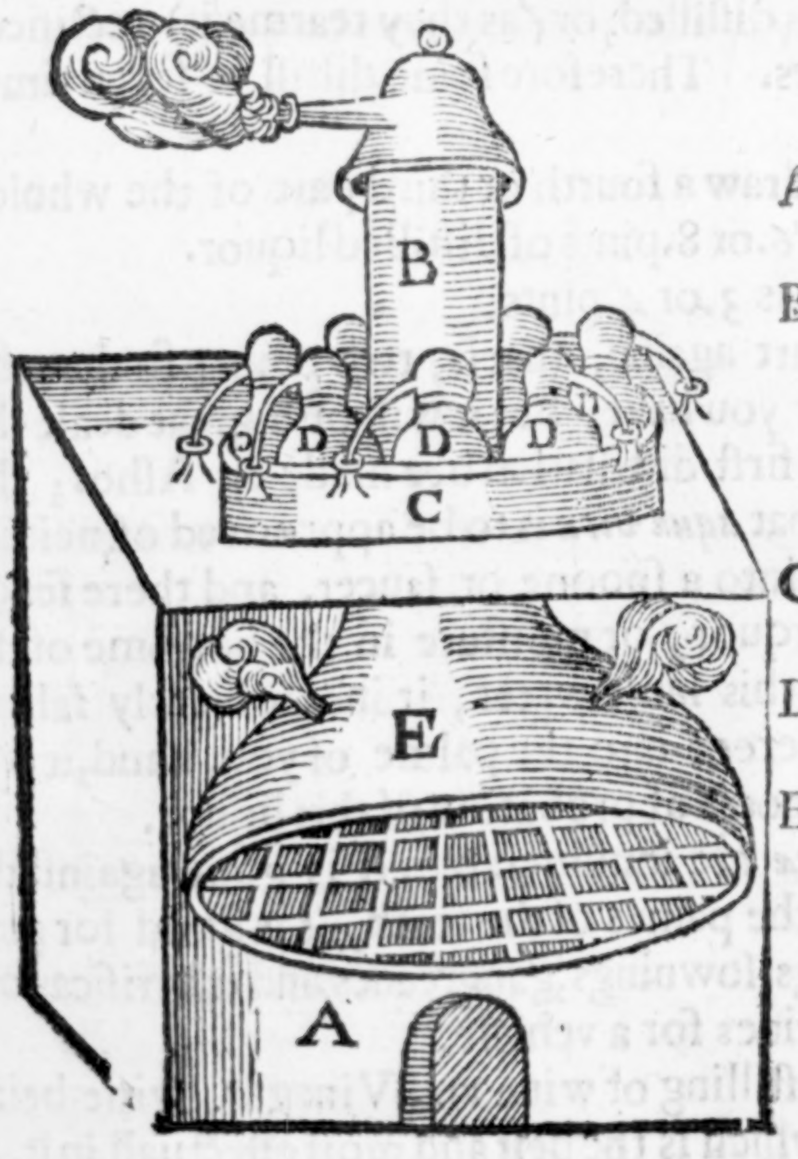
Roſe water.

The diſtilled Alimentary liquors are nothing elſe than thoſe that wee vulgarly call Reſtauratives; this is the manner and art of preparing them. Take of Veale, Mutton, Kid, Capon, Pullet, Cocke, Partridge, Pheaſant, as much as ſhall ſeeme fit for your purpoſe: cut it ſmall, and leaſt it ſhould acquire heate, or *empyreuma* from the fire, mixe therewith a handfull of French Barley, and of red Roſe leaves dry and freſh, but firſt ſteeped in the juice of Pomegranats, or citrons and Roſewater with a little Cinnamon, as much.

Reſtauratives.

But if you deſire that this reſtaurative ſhould not onely bee alimentary but alſo medicinall, you ſhall adde thereto ſuch things as ſhall reſiſt the diſeaſe, ſuch as are Cordiall pouders as of *El. Diamargarit. frigid. De Gemmis, Aromaticum Roſat.* Conſerve of Bugloſſe, Borrage, roots, hearbes, ſeeds and other things of that kind. But if it be in a peſtiferous ſeaſon, Treacle, Mithridate and other Antidotes ſhall be added; each of theſe ſhall be laid in rankes or orders one over another, which is vulgarly termed *ſtratum ſuper ſtratum*, in a glaſſe Alembeck, and diſtilled in *balneo Mariæ* with the heate of Aſhes, or elſe of warme ſand, as the following figure ſhewes.

The delineation of a Balneum Mariæ, *which may alſo ſerve for to diſtill with Aſhes.*



A. *Shewes the Fornace with the hole to take forth the Aſhes.*

B. *Shewes another Fornace, as it were ſet in the other: now it is of Braſſe, and runs through the midſt of the kettle made alſo of braſſe, that ſo the conteined water or aſhes may bee the more eaſily heated.*

C. *The kettle wherein the water, aſhes, or ſand are conteined.*

D. *The Alembecke ſet in the water, aſhes, or ſand, with the mouthes of the receivers.*

E. *The bottome of the ſecond braſſe Fornace, whoſe top is marked with* B. *which containes the fire.*

There

Another way of making reſtorative Liquors.

There may be made other reſtrauratives in ſhorter time with leſſe labour and coſt. To this purpoſe the fleſh muſt be beaten and cut thinne, and ſo thruſt through with a double thred, ſo that the peices thereof may touch each other; then put them into a Glaſſe, and let the thred hang out; ſo ſtop up the glaſſe cloſe with a linnen cloth, Cotton, or Towe, and lute it up with paſte made of meale and the whites of egges; then ſet it up to the necke in a kettle of water, but ſo that it touch not the bottome, but let it be kept upright by the formerly deſcribed meanes; then make a gentle fire thereunder, untill the contained fleſh by long boyling ſhall bee diſſolved into juyce, and that will commonly be in ſome foure houres ſpace. This being done, let the fire be taken from under the kettle, but take not forth the glaſſe before the water be cold, leaſt it being hot ſhould be broken by the ſuddaine appulſe of the cold aire. Wherefore when as it is cold, let it be opened, and the thred with the peeces of fleſh be drawne forth, ſo that onely the juyce may be left remaining; then ſtraine it through a bagge, and aromatize it with Sugar and Cinnamon, adding a little juyce of Citron, Verjuice or Vinegar, as it ſhall beſt like the patients palate.

After this manner you may quickely, eaſily and without great coſt have and prepare all ſorts of reſtauratives aſwell medicated as ſimple. But the force and faculty of purging medicines is extracted after a cleane contrary manner than the oyles and waters are drawne of Aromaticke things, as Sage, Roſemary, Time, Aniſeedes, Fennell, Cloves, Cinnamon, Nutmegs, and the like. For the ſtrength of theſe, as that which is ſubtile and ayery, flies upwards in diſtillation; but the ſtrength of purging things, as Turbith, Agaricke, Rubarbe and the like, ſubſide in the bottome. For the purgative faculty of theſe purgers inſeparably adheres to the bodies and ſubſtances.

Now for ſweet waters and ſuch as ſerve to ſmooth the ſkinne of the face, they may be diſtilled in *Balneo Mariæ* like as Roſe water.

Chap. VIII.

How to diſtill Aqua vitæ, or the ſpirit of wine.

TAke of good White or Clarret wine or Sacke which is not ſowre nor muſtie, nor otherwiſe corrupt, or of the Lees that quantity which may ſerve to fill the veſſell wherein you make the diſtillation to a third part; then put on your head furniſhed with the noſe or pipe, and ſo make your diſtillation in *Balneo Mariæ*. The oftner it is diſtilled, or (as they tearme it) rectified, the more noble and effectuall it becomes. Therefore ſome diſtill it ſeven times over.

Spirit of wine ſeaven times rectified.

At the firſt diſtillation it may ſuffice to draw a fourth or third part of the whole; to wit, of 24. pints of Wine or Lees, draw 6. or 8. pints of diſtilled liquor.

At the ſecond time the halfe part of that is 3. or 4. pints.

At the third diſtillation the halfe part againe, that is, two pints; ſo that the oftner you diſtill it over, the leſſe liquor you have, but it will be a great deale the more efficacious. I doe well like that the firſt diſtillation bee made in Aſhes; the ſecond in *Balneum Mariæ*. To conclude, that *aqua vitæ* is to be approoved of, neither is it any oftner to be diſtilled, which put into a ſpoone or ſaucer, and there ſet on fire, burnes wholly away and leaves no liquor, or moiſture in the bottome of the veſſell; if you drop a drop of oyle into this ſame water, it incontinently falls to the bottome; or if you drop a drop thereof into the palme of your hand, it will quickly vaniſh away, which are two other notes of probation of this liquor.

The faculties of the ſpirit of wine.

The faculties and effects of *aqua vitæ* are innumerable, it is good againſt the epilepſie and all cold diſeaſes, it aſſwages the paines of the teeth, it is good for punctures and wounds of the Nerves, faintings, ſownings, gangreenes and mortification, both of its fleſh, as alſo put to other medicines for a vehicle.

There is this difference betweene the diſtilling of wine and Vinegar, wine being of an ayery and vaporous ſubſtance, that which is the beſt and moſt effectuall in it, to wit, the aiery and fiery liquor, comes from it preſently at the firſt diſtillation. Therefore the reſidue that remaines in the bottome of the veſſell, is of a cold, dry and acrid nature; on the contrary, the water that comes firſt from Vinegar being diſtilled is inſipide and flegmaticke. For Vinegar is made by the corruption of wine, and the ſegregation of the fiery and aiery parts; wherefore the wine becomming ſowre, there remaines nothing almoſt of the former ſubſtance but phlegme; wherefore ſeeing phlegme is chiefly predominant in Vinegar, it firſt riſes in diſtillation. Wherefore he that hopes to diſtill the ſpirit of Vinegar, hee muſt caſt away the phlegmaticke ſubſtance that firſt riſes, and when by his taſte he ſhall perceive the ſpirit of the Vinegar, he ſhall keepe the fire there under, untill the flowing liquor ſhall become as thicke as honey; then muſt the fire be taken away, otherwiſe the burning of it will cauſe a great ſtinch.

The diſtilling of Wine and Vinegar is different.

The veſſells fit to diſtill *aqua vitæ* and Vinegar are diverſe, as an Alembicke or Retort ſet in ſand or Aſhes; a Coppar or braſſe bottome of a ſtill, with a head thereto, having a pipe comming forth thereof which runs into a worme, or pipe faſtned in a barrell or veſſell filled with cold water, and having the lower end comming forth thereof, whoſe figure wee ſhall give you when as wee come to ſpeake of the drawing of oyles out of vegetables.

Chap. IX.

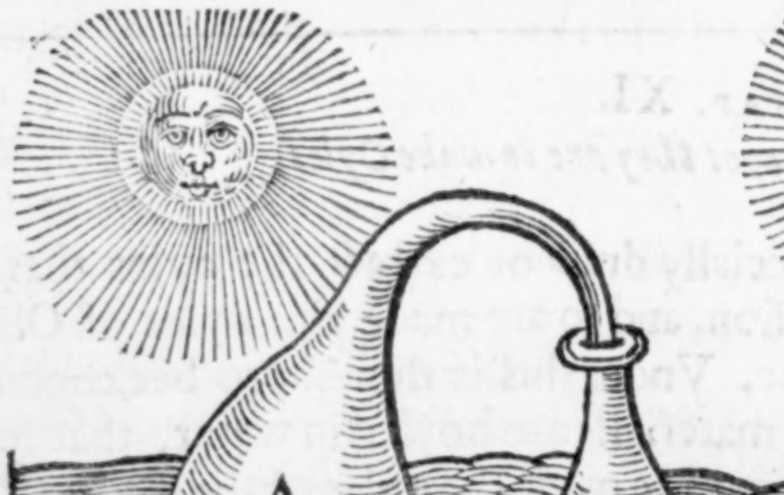
Of the manner of rectifying, that is, how to encreaſe the ſtrength of waters, that have beene once diſtilled.

The firſt way.

To rectifie the waters that have beene diſtilled in *Balneo Mariæ*, you muſt ſet them in the Sunne in glaſſes well ſtopped and halfe filled, being ſet in ſand to the third part of their height, that the water waxing hot by the heate of the Sun may ſeparate it ſelfe from the phlegme mixed therewith, which will be performed in 12. or 15. dayes. There is another better way to doe this, which is to diſtill them againe in *Balneo* with a gentle fire, or if you will put them into a retort furniſhed with his receiver, and ſet them upon cryſtall or iron bowles, or in an iron mortar directly oppoſite to the beames of the Sun, as you may learne by theſe enſuing ſignes.

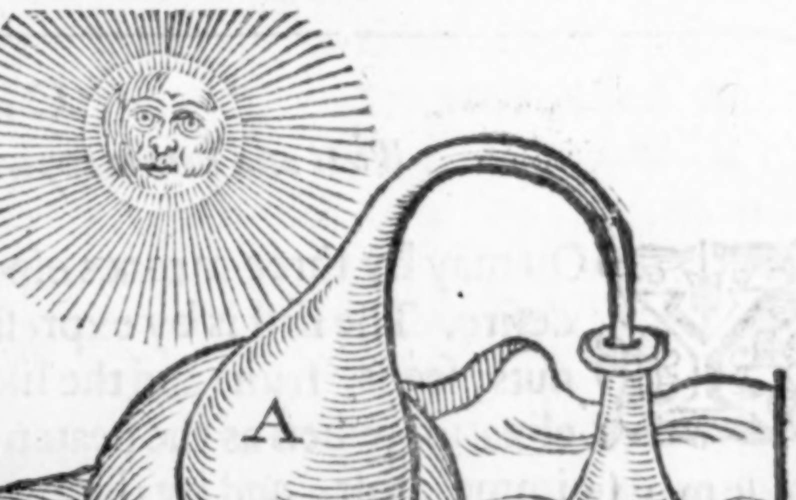
The ſecond.

A Retort with his receiver ſtanding upon Cryſtall bowles, juſt oppoſite to the Sunne beames.



A. *Shewes the Retort.*
B. *The receiver.*
C. *The Cryſtall bowles.*

Another Retort with his receiver ſtanding in a Marble or Iron mortar, directly oppoſite to the Sun.



A. *Shewes the Retort.*
B. *The Marble, or Iron mortar.*
C. *The receiver.*

Chap. X.

Of diſtillation by filtring.

You ſhall ſet three baſons or veſſells of convenient matter in that ſite and order that each may be higher than other; that which ſtands in the higheſt place, ſhall conteine the liquor to bee diſtilled, and that which ſtands loweſt ſhall receive the diſtilled liquor. Out of the firſt and ſecond veſſell ſhall hang ſhreds or peeces of cloth or cotton, with their broader ends in the liquor or upper veſſell, and the other ſharper ends hanging downe, whereby the more ſubtle and defæcate liquor may fall downe by drops into the veſſell that ſtands under it, but the groſſer and more feculent part may ſubſide in the firſt and ſecond veſſell. You by this meanes may at the ſame time diſtill the ſame liquor divers times, if you place many veſſells one under another after the forementioned manner, and ſo put ſhreds into each of them, ſo that the loweſt veſſell may receive the purified liquor. In ſtead of this diſtillation Apothecaries oft times uſe bagges.

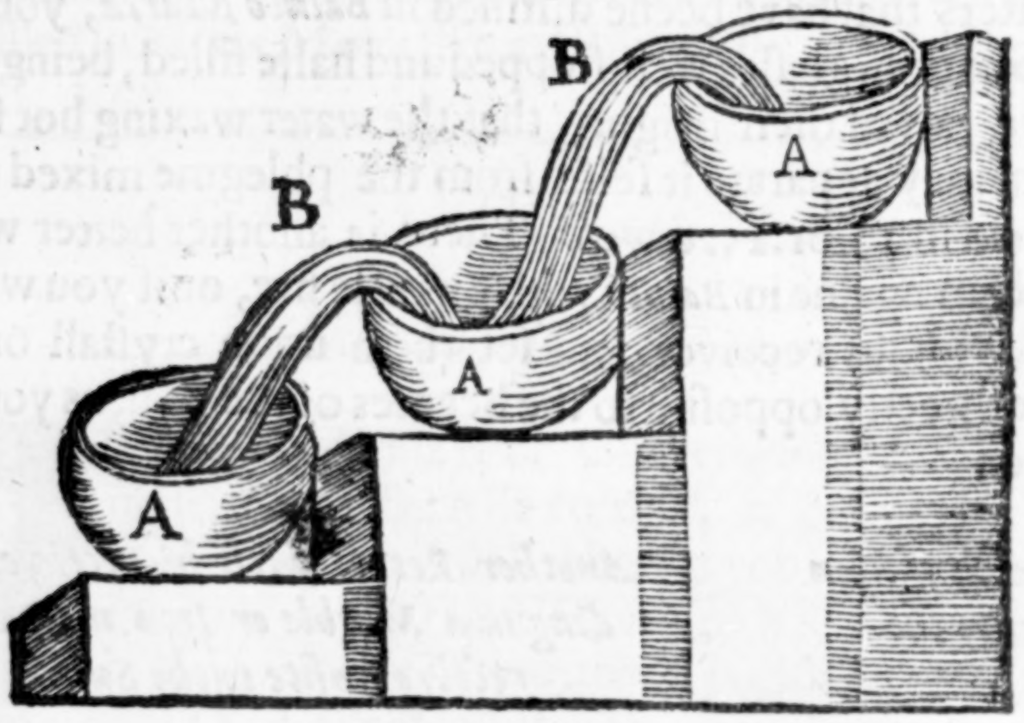
This manner of diſtillation was invented to make more cleare and pure waters, and all juices and compoſitions, which are of ſuch a liquid conſiſtence. You may take an example of this from *Lac Virginis*, or Virgins milke, of which this is the deſcription.

Lac Virginis.

℞. *litharg. auri diligenter pulveriſ.* ℥iij. *macerentur in aceti boni* ℥vj. *trium horarum ſpatio, ſeorſim etiam in aqua plantaginis, ſolani, roſarum, aut communi ſal infundatur*; then diſtill them both by ſhreads, then mixe the diſtilled liquors, and you ſhall have that which for the milkie whiteneſſe is termed Virgins milke, being good againſt the redneſſe and pimples in the face, as we have noted in our Antidotary.

Ch. 44. of ſuci.

The deſcription of veſſells to performe the diſtillation or filtration by ſhreds.



A, *Shewes the veſſell:*
B, *The Clothes or ſhreds:*

Chap. XI.

What and how many wayes they are to make Oyles.

You may by three meanes eſpecially draw or extract the oyles that you deſire. The firſt is by expreſſion, and ſo are made the oyles of Olives, nuts, ſeeds, fruits and the like. Under this is thought to bee conteined elixation, when as the beaten materialls are boyled in water, that ſo the oyle may ſwimme aloſt, and by this meanes are made the oyles of the ſeedes of the berries of Elder and Danewort, and of bay-berries. Another is by infuſion, as that which is by infuſing the parts of plants and other things in oyles. The third is by diſtillation, ſuch is that which is drawne by the heate of the fire, whether by aſcent or by deſcent, or by concourſe; The firſt way is knowne by all; now it is thus, take almonds in their huskes, beate them, worke them into a maſſe, then put them into a bagge made of haire, or elſe of ſtrong cloth firſt ſteeped in water or in white Wine, then put them into preſſe and ſo extract their oyle. You may doe the ſame in pine apple kernells, Hazell nuts, Coco nuts, nutmegs, peach kernells, the ſeeds of gourds & cucumbers, piſticke nuts, and all ſuch oiely things. Oyle of bayes may be made of ripe bay-berries newly gathered, let them be beaten in a morter and ſo boiled in a double veſſell, and then forthwith put into preſſe, ſo to extract oyle as you

Oiles by expreſſion.

By infuſion.

By diſtillation.

Oyle of Bayberries.

you doe from Almonds, unleſſe you had rather get it by boyling as we have formerly noted. Oyle of Egges is made of the yoalkes of Egges boiled very hard; when they are ſo, rub them to peeces with your fingers, then frie them in a panne over a gentle fire, continually ſtirring them with a ſpoone untill they become red, and the oyle be reſolved and flow from them; then put them into a haire cloth, and ſo preſſe forth the oile. The oyles prepared by infuſion are thus made, make choiſe of good oyle wherein let plants, or creatures, or the parts of them bee macerated for ſome convenient time, that is, untill they may ſeeme to have transfuſed their faculties into the oyle, then let them be boiled, ſo ſtrained or preſſed out. But if any aquoſity remaine, let it be evaporated by boyling. Some in compounding of oyles adde gums to them, of which though we have formerly ſpoken in our Antidotary, yet have I thought good to give you this one example. ℞. *flor. hyper.* ℔ ß. *immittantur in phialam cum flo. cent. & gum. elemi, an.* ℥ij. *olei com.* ℔. ij. Let them be expoſed all the heate of Summer to the Sunne. If any will adde *aqua vitæ* wherein ſome Benzoin is diſſolved, he ſhall have a moſt excellent oyle in this kind. Oyle of Maſticke is made *Ex olei roſati* ℥xij *maſtich.* ℥iij. *vini optimi* ℥viij. Let them all bee boiled together to the conſumption of the wine, then ſtraine the Oyle and reſerve it in a veſſell.

Of Egges.

Oyle of S. Iohns wort.

Of Maſticke.

Chap. XII.

Of extracting Oiles of vegetables by Diſtillation.

Almoſt all hearbes that carry their flowres and ſeeds in an umbell, have ſeeds of a hot, ſubtle and aiery ſubſtanc, and conſequently oyly. Now becauſe the oyly ſubſtance that is conteined in ſimple bodyes is of two kindes, therefore the manner alſo of extracting is twofold. For ſome is groſſe, earthy, viſcous, and wholy confuſed and mixt with the bodyes out of which they ought to be drawne, as that which wee have ſayd is uſually extracted by expreſſion; this becauſe it moſt tenaciouſly adheres to the groſſer ſubſtance, and part of the body, therefore it cannot by reaſon of this naturall groſſeneſſe, bee lifted up, or aſcend. Otherſome are of a ſlender, and aiery ſubſtance, which is eaſily ſevered from their body, wherefore being put to diſtillation it eaſily riſes: ſuch is the oyly ſubſtance of aromaticke things, as of Iuniper, Aniſeeds, Cloves, Nutmegs, Cinnamon, Pepper, Ginger, and the like odoriferous and ſpicy things. This is the manner of extracting oyles out of them; let your matter be well beaten and infuſed in water to that proportion, that for every pound of the materiall, there may bee ten pints of water; infuſe it in a copper bottome, having a head thereto either tinned or ſilvered over, and furniſhed with a couller filled with cold water. Set your veſſell upon a furnace having a fire in it, or elſe in ſand, or aſhes. When as the water contained in the head ſhall waxe hot, you muſt draw it forth, and put in cold, that ſo the ſpirits may the better be condenſed, and may not fly away: you ſhall put a long neckt receiver to the noſe of the Alembecke, and you ſhall increaſe the fire, untill the things conteined in the Alembecke boyle.

What oyles are to be drawne by expreſſion.

The firſt manner of drawing oiles by diſtillation.

There is alſo another manner of performing this diſtillation, the matter preſerved and infuſed as we have formerly declared, ſhall be put in a braſſe or copper bottome covered with his head, to which ſhall be fitted, and well luted, a worme of Tinne, this worme ſhall runne through a barrell filled with cold water, that the liquor which flowes forth with the oyle, may be cooled in the paſſage forth; at the lower end of this worme you ſhall ſet your receiver. The fire gentle at the firſt, ſhall be encreaſed by little and little, untill the conteined matter, as wee formerly ſayd, do boyle; but take heede that you make not too quicke or vehement a fire, for ſo the matter ſwelling up by boyling may exceede the bounds of the containing veſſell, and ſo violently fly over.

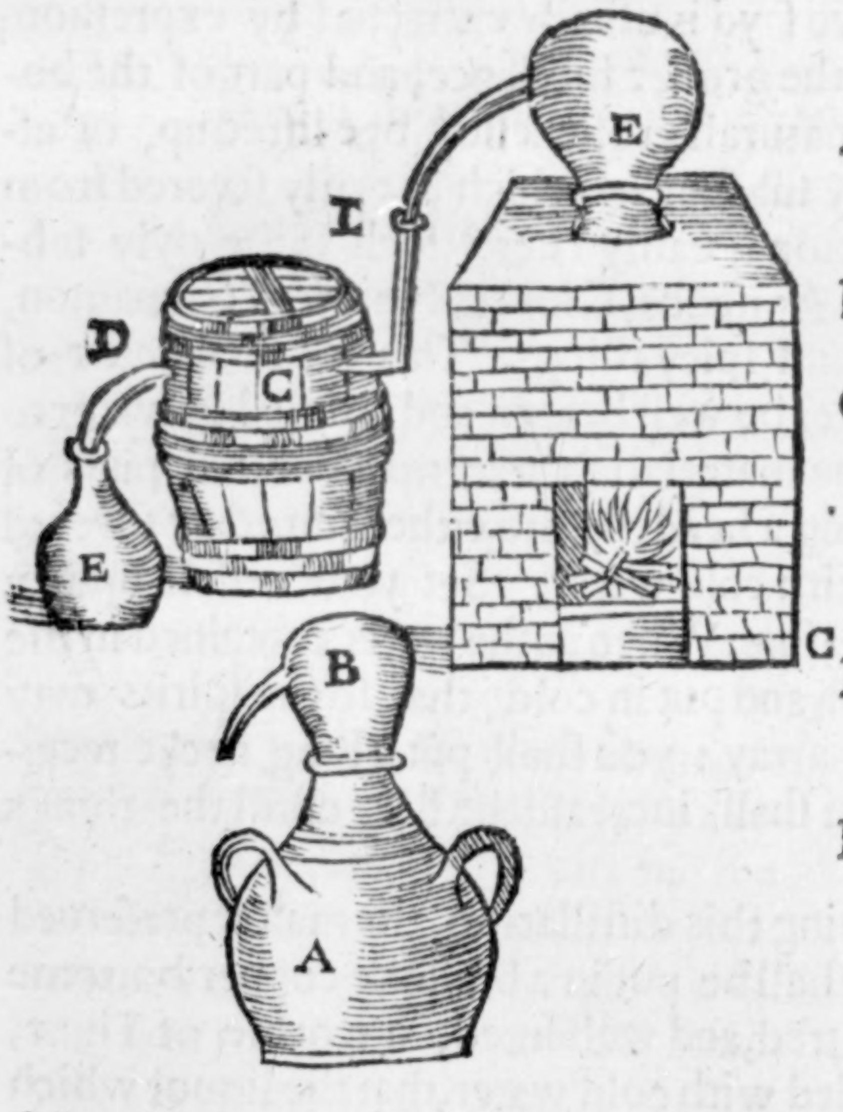
Another way.

Obſerving theſe things, you ſhall preſently at the very firſt ſee an oiely moiſture flowing forth together with the watriſh. When the oyle hath done owing which you may know by the colour of the diſtilled liquor, as alſo by the conſiſtence and taſte, then put out the fire; and you may ſeparate the oyle from the water by a little veſſell made like a Thimble and tyed to the end of a ſticke; [or, which is better, with a glaſſe funnell, or inſtrument made of glaſſe for the ſame purpoſe.] Here you muſt alſo note that there be ſome oiles that ſwimme upon the top of the water, as oile of aniſeedes; otherſome on the contrary, which fall to the bottome, as oile of Cinnamon, Mace, and Cloves.

What oiles fall to the bottome.

Moreover you muſt note, that the watriſh moiſture, or water that is diſtilled with oile of Aniſeede and Cinnamon, is whitiſh, and in ſucceſſe of time, will in ſome ſmall proportion turne into oile. Alſo theſe waters muſt bee kept ſeverall, for they are farre more excellent than thoſe that are diſtilled by *Balneum Mariæ*, eſpecially thoſe that firſt come forth together with the oyle. Oiles are of the ſame faculties with the bodies from whence they are extracted, but much more effectuall; for the force which formerly was diffuſed in many pounds of this, or that medicine, is after diſtillation contracted in a few drams. For example, the facultie that was diſperſed over j. pound of Cloves, will be contracted into two ounces of oyle at the moſt; and that which was in a pound of Cinnamon will be drawne into ʒ ß. or ʒ ij. at the moſt of oile. But to draw the greater quantity with the leſſer charge, and without feare of breaking the veſſells, whereto glaſſes are ſubject, I like that you diſtill them in copper veſſells, for you neede not feare that the oyle which is diſtilled by them will contract an ill quality from the copper, for the watriſh moiſture that flowes forth together therewith will hinder it, eſpecially if the copper ſhall be tinned or ſilvered over. I have thought good to deſcribe and ſet before your eyes, the whole manner of this operation.

A Fornace with ſet veſſells to extract the Chymicall oiles, or ſpirits of Sage, Roſemary, Time, Lavender, Aniſeeds, Fennell ſeeds, Cloves, Nutmegs, Cinnamon, Pepper Ginger, and the like; as alſo to diſtill the ſpirit of wine, of Vinegar aud aqua vitæ. *In ſtead of the barrell and worme, you may uſe a head with a bucket or rowler about it.*



A. *Shewes the bottome, which ought to be of Copper and tinned on the inſide.*

B. *The head.*

C. *The Barrell filled with cold water to refrigerate and condenſate the water and oyle that run through the pipe or worme that is put through it.*

D. *A pipe of braſſe or lattin, or rather a worme of Tinne running through the Barrell.*

E. *The Alembecke ſet in the fornace with the fire under it.*

Now becauſe we have made mention of Cinnamon, Pepper, and other ſpices, which grew not here with us, I have thought good to deſcribe theſe out of *Thevets* Coſmography, he having ſeene them growing. Pepper growes on ſhrubs in *India*, theſe ſhrubs ſend forth little branches whereon hang cluſters of berries, like to Ivy berries, or bunches of ſmall blacke grapes, or currance. The leaves are like thoſe of the Citron tree, but ſharpiſh and pricking.

The deſcription of Pepper.

The *Indians* gather thoſe berries with great diligence, and ſtow them up in large cellars, as ſoone as they come to perfect maturity. Wherefore it oft times happens, that there are more than 200. ſhippes upon the coaſt of the leſſer *Iava* an Iſland of that country, to carry thence Pepper and other ſpices. Pepper is uſed in Antidotes againſt poyſons, it provokes urine, digeſts, attracts, reſolves, and cures the bites of Serpents. It is properly applyed and taken inwardly againſt a cold ſtomacke; in ſauces it helpes concoction and procures appetite; you muſt make choyſe of ſuch as is blacke, heavie, and not flaccide. The trees which beare white, and thoſe that beare blacke pepper, are ſo like each other, that the natives themſelves know not which, is which, unleſſe when they have their fruite hanging upon them, as the like happens upon our Vines which beare white and blacke grapes.

The uſes thereof,

The tree that yeelds Cinnamon growes in the mountaines of *India*, and hath leaves very like to bay leaves; branches and ſhootes at certaine times of the yeere are cut from this tree, by the appointment of the King of that province, the barke of which is that we terme Cinnamon. This is ſold to no ſtranger unleſſe at the Kings pleaſure and he ſetting the price thereof, it is not lawfull for others to cut any thereof.

The Cinnamon tree,

Galen writes that Cinnamon is of very ſubtle parts, hot in the third degree, and partaking of ſome aſtriction; therefore it cuts and diſſolves the excrements of the body, ſtrengthens the parts, provokes the courſes when as they ſtoppe by reaſon of the admixture of groſſe humors; it ſweetens the breath, and yeelds a fine taſte and ſmell to medicines, hippocras, and ſauces. Of Cinnamon there is made an excellent water againſt all cold diſeaſes, and alſo againſt ſwoonings, the plague and poyſons. The compoſition thereof is this. Take of the choyſeſt and beſt Cinnamon one pound, beate it groſſely, and put thereto of Roſe water 4 pints, of white wine halfe a pint, being thus mixed, put them into a glaſſe and ſo let them ſtand in infuſion 24 houres, often ſtirring of them. Then diſtill them in *Balneo Mariæ*, cloſely luting the receiver and veſſels leaſt the ſpirit ſhould fly away.

7. ſimp.

An excellent Cinnamon tree.

CHAP. XIII.

Another manner how to draw the eſſence and ſpirits of herbes, flowers, ſeedes, and ſpices; as alſo of Rubarbe, Agaricke, Turbith, Hermodactiles, and other Purgers.

YOu may extract the eſſences and ſpirits of the things mentioned in the title of this chapter, as thus. Take Sugar, Rubarbe, Cinnamon, or any other materiall you pleaſe; cut it ſmall, or elſe beate it, then put it into a glaſſe with a long necke, and poure thereupon as much *aqua vitæ* as ſhall be ſufficient to cover the materials or ingredients, & to overtop them ſome fingers bredth, then ſtop up the glaſſe very cloſe that no ayre enter thereinto; Thus ſuffer it to infuſe for 8 dayes in *balneo* with a very gentle heate; for thus the *aqua vitæ* will extract the facultyes of the ingredients, which you ſhall know that it hath done, when as you ſhall ſee it perfectly tinctured with the colour of the ingredients. The eight dayes ended, you ſhall put this ſame *aqua vitæ* into another veſſell filled with the like quantity of the ſame materialls prepared after the ſame manner, that it may alſo take forth the tincture thereof, and doe thus three or foure times, untill the *aqua vitæ* be deepely tinctured with the colour of the infuſed Ingredients.

A ſigne that the ſpirit of wine hath fetcht out the ſtrength of the ingredients.

But if the materialls from whence you deſire to extract this ſpirit or eſſence, bee of great price, as *Lignum Aloes*, *Rubarbe*, *&c.* You muſt not thinke it ſufficient to infuſe it once onely, but you muſt goe over it twiſe, or thriſe, untill all the efficacie be extracted out thereof; you may know that it is all wholy inſipide.

These things thus done, as is fitting, put all the liquor tinctured and furniſhed with the colour and ſtrength of the ingredients, into an Alembecke, fitted and cloſely luted to its head, and ſo put into *Balneum Mariæ*, that ſo you may extract or draw off the *aqua vitæ*, to keepe for the like purpoſe, and ſo you ſhall have the ſpirit, and eſſence remaining in the bottome.

A ſigne that the ingredients have loſt their ſtrength.

Now if you deſire to bring this extract to the height of honey, ſet it in an earthen pot well leaded, upon hot aſhes, ſo that the thinne part thereof may be evaporated, for thus at length, you ſhall have a moſt noble and effectuall eſſence of that thing which you have diſtilled, whereof one ſcruple will be more powerfull in purging, than two or three drammes of the thing its ſelfe.

Chap. XIIII.

How to extract oyle out of Gums, condenſed juices, and roſines, as alſo out of ſome woods.

What a Retort is.

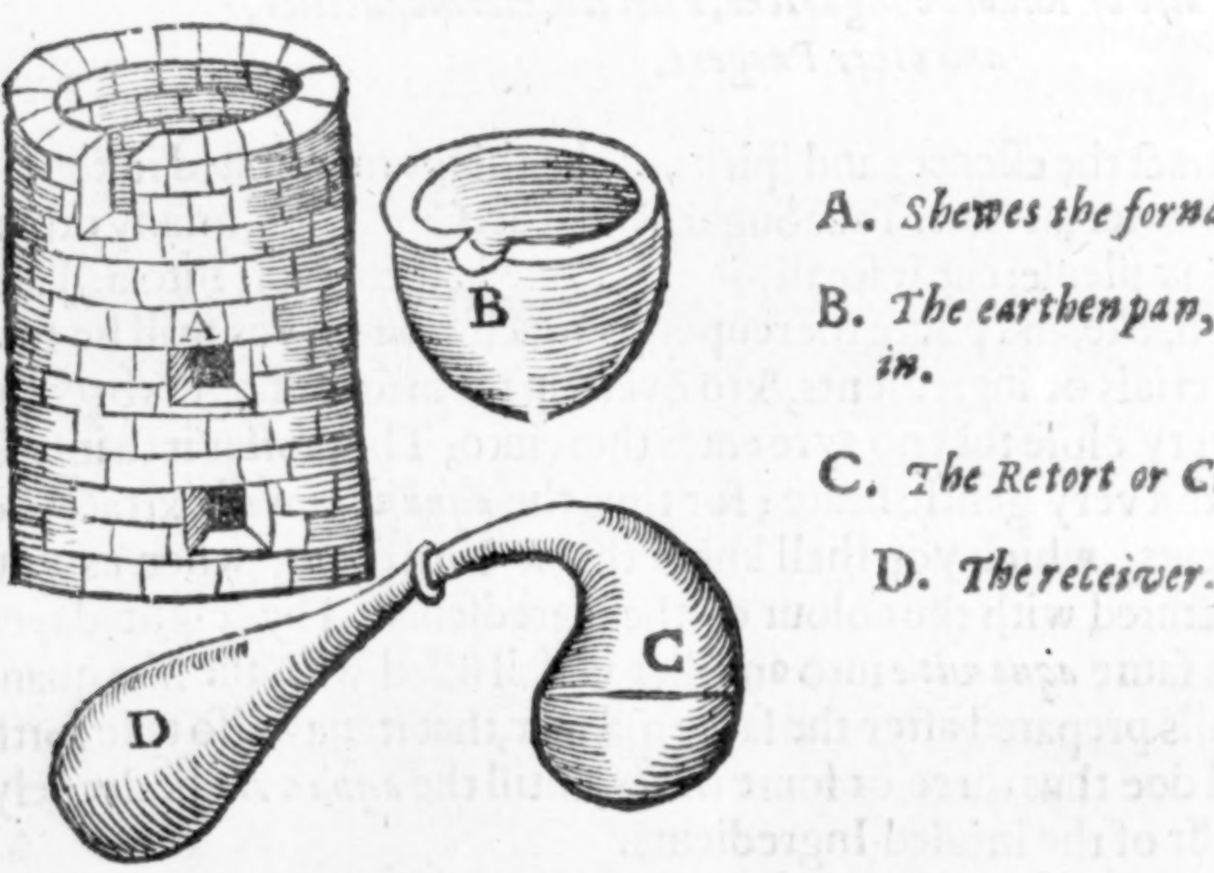
ALL oyles that are drawne out of Gummes, oyely woods and mettalls, are extracted by that veſſell which we vulgarly terme a Retort. It muſt bee made of glaſſe, or jugges mettall well Leaded, and of ſuch bigneſſe as ſhall be convenient for the operation you intend, though commonly it ſhould be made to hold ſome gallon and an halfe of water; the necke thereof muſt be a foote and an halfe, or at leaſt a foote long. The receiver is commonly a viall whereinto the necke of the Retort is fitted and inſerted. Then the Retort ſhall bee ſet in an earthen pan filled with aſhes, or ſand, and ſo ſet into a furnace, as you may ſee by the following figure.

The differences of Gummes.

Cautions in diſtilling of gummes.

Of gummes ſome are liquid, ſome ſolide; and of the ſolide, ſome are more ſolide than otherſome; thoſe that are ſolide are more troubleſome to diſtill than the liquide, for they are not ſo eaſily diſſolved or melted, neither doe they yeeld ſo well to the fire, ſo that oft times they are burnt before they bee diſſolved; whence it is that ſome for every pound of ſolide gumme, adde two or three pounds of moſt cleare and liquide oyle of Turpentine. Beſides, liquide things are alſo hard to be diſtilled, becauſe when as they come to be throughly hot at the fire, they ſwell up ſo much, that they exceed, or runne out of the Retort, and ſo fall into the receiver, as they were put into the Retort, eſpecially if ſo be that the fire be too hot at the firſt. Many to ſhunne this inconvenience, adde to the things put into the Retort, ſome ſand, as it were, to balaſt it withall.

The figure of a furnace, with his earthen pan and receiver.



A. *Shewes the fornace.*

B. *The earthen pan, or veſſell to ſet the Retort in.*

C. *The Retort or Cucurbite.*

D. *The receiver.*

How to make oyle of Turpentine.

Oyle of Roſin and Turpentine is thus made; take two or three pounds of Turpentine, and put it into a Retort of ſuch largeneſſe, that three parts thereof might remaine empty, and for every pound of Turpentine adde three or foure ounces of ſand; then place the Retort in an earthen pan, filled with ſifted aſhes, and ſet it upon the fornace as is fit, and to the necke thereof fit and cloſely lute a receiver. Laſtly, kindle thereunder a ſoft fire at the firſt, leaſt the contained materialls ſhould runne over; encreaſe this fire by little, and little, and take heed that the things become not too hot on a ſuddaine. At the firſt, a cleare and acide liquor will drop out, wherein a certaine ſediment uſes to concreat; then will flow forth a moſt cleere oyle, ſomewhat reſembling the watry and phlegmaticke liquor; then muſt the fire be ſome what encreaſed, that the third oyly, cleare, thinne and very golden coloured liquor may riſe and diſtill; but then alſo a clearer and more violent fire muſt be rayſed, that ſo you may extract an oyle that will be red like a carbuncle, and of a conſiſtence indifferently thicke. Thus therefore you may extract, foure kinds of liquors out of Turpentine, and receive them being different in ſeverall receivers; yet I judge it better to receive them all in one, that ſo by diſtilling them againe afterwards you may ſeparate your deſired oyle; now there will ten or twelve ounces of oyle, flow from an ounce of Turpentine. This kind of oyle is effectuall againſt the Palſie, Convulſions, punctures of the nerves, and wounds of all the nervous parts.

How to make oyle of waxe.

But you ſhall thus extract oyle out of waxe; take one pound of waxe, melt it, and put it into a glaſſe Retort ſet in ſand, or aſhes, as wee mentioned a little before in drawing of oyle of Turpentine, then deſtill it, by encreaſing the fire by degrees. There diſtills nothing forth of waxe, beſides an oyly ſubſtance and a little *Phlegma*, yet portion of this oyly ſubſtance, preſently concreats into a certaine butter-like matter, which therefore would be diſtilled over againe; you may draw ℥vj, or viij. of oyle, from one pound of waxe.

The faculties thereof.

This oyle is effectuall againſt Contuſions, and alſo very good againſt cold affects.

CHAP. XV.

Of extracting of oyles out of the harder ſorts of Gummes, as myrrhe, maſtich, frankincenſe and the like.

SOme there be who extract theſe kinds of oyles with the Retort ſet in aſhes or ſand, as we mentioned in the former Chapter of oyles of more liquid gums, adding for every pound of gumme two pints of *Aqua vitæ*, and two or three ounces of oyle of Turpentine, then let them infuſe for eight or ten dayes in *Balneo Mariæ*, or elſe in horſe dung; then they ſet it to diſtill in a Retort. Now this is the true manner of making of oyles of Myrrhe; Take Myrrhe made into fine pouder, and therewith fill hard Egges in ſtead of their yoalkes being taken out; then place the Egges upon a gridiron, or ſuch like grate in ſome moiſt place as a cellar, and ſet under them a Leaden earthen panne; the Myrrhe will diſſolve into an oilely water, which being preſently put into a glaſſe and well ſtopped, with an equall quantitie of rectified *aqua vitæ*, and ſo ſet for three or foure monthes in hot horſe dung, which paſt the veſſell ſhall be taken forth, and ſo ſtopped that the conteined liquor may be poured into an Alembecke, for there will certaine groſſe ſetling by this meanes remaine in the bottome, then ſet your Alembecke in *Balneo* and ſo draw off the *aqua vitæ* & phlegmaticke liquor, and there will remaine in the bottome a pure & cleare oile, whereto you may give a curious colour by mixing therewith ſome Alkanet, and a ſmell by droping thereinto a little oyle of Sage, Cinnamon or cloves

How to make oyle of myrrhe.

How to give it a pleaſing colour and ſmell.

Now let us ſhew the compoſition and manner of making of balſames by giving you one or two examples; the firſt of which is taken out of *Veſalius* his Chirurgery; and is this.

Veſalius his balſame.

℞. *terebinth. opt.* ℔. j. *ol. laurini* ℥iiij *galbani*, ʒiij. *gum. elem.* ℥iiij ß. *thuris*, *Myrrhæ*, *gum. hederæ*, *centaur. majoris*, *ligni aloës*, *an.* ℥iij. *galangæ*, *caryophyll. conſolidæ majoris*, *Cinamoni*, *nucis moſchat. zedoariæ*, *zinzib. dictamni albi*, *an.* ʒj. *olei vermium terreſtrium*, ℥ij. *aq. vitæ* ℔. vj.

The manner of making it is this, let all theſe things be beaten and made ſmall, and ſo infuſed for three dayes ſpace in *aqua vitæ*, then diſtilled in a Retort juſt as wee ſaid, you muſt diſtill oyle of Turpentine and waxe. There will flow hence three ſorts of liquors, the firſt watriſh and cleare, the other thinne, and of pure golden colour; the third of the colour of a Carbuncle, which is the true Balſame. The firſt liquor is effectuall againſt the weakeneſſe of the ſtomacke comming of a cold cauſe, for that it cuts flegme and diſcuſſes flatulencies; the ſecond helpes freſh and hot bleeeing wounds, as alſo the palſie. The third is chiefly effectuall againſt theſe ſame effects. The compoſition of the following *Balſamum* is out of *Fallopius*; and is this. ℞. *terebinth. claræ*, ℔. ij. *olei de ſemine lini* ℔. j. *reſinæ pini*, ℥vj, *thuris*, *myrrhæ*, *aloes*, *maſtiches*, *ſarcocollæ*, *an.* ℥iij. *macis*, *ligni Aloes*, *an.* ℥ij.

Fallopius his balſame.

croci, ℥ß. Let them all be put in a glaſſe Retort, ſet in aſhes and ſo diſtilled. Firſt there will come forth a cleere water, then preſently after, a reddiſh oyle, moſt profitable for wounds.

What frankinſenſe is.

The faculties thereof.

Now you muſt know that by this meanes, we may eaſily diſtill all Axungia's, fatts, parts of creatures, woods, all kinds of barkes and ſeeds, if ſo bee that they be firſt macerated as they ought to bee, yet ſo that there will come forth more watry than oyly humidity. Now for that wee have formerly frequently mentioned *Thus* or frankinſenſe, I have heere thought good out of *Thevets* Coſmography to give you the deſcription of the tree from which it flowes. The frankincenſe tree (ſaith hee) growes naturally in *Arabia*, reſembles a pine, yeelding a moiſture that is preſently hardened, and it concreates into whitiſh cleare graines, fatty within, which caſt into the fire, take flame. Now frankincenſe is adulterated with pine-roſin and Gumme, which is the cauſe that you ſhall ſeldome finde that with us, as it is here deſcribed; you may finde out the deceit as thus, for that neither Roſin nor any other gumme takes flame, for Roſin goes away in ſmoake, but frankinceſe preſently burnes. The ſmell alſo bewrayes the counterfeite, for it yeelds no gratefull ſmell as frankincenſe doth. The *Arabians* wound the tree that ſo the liquor may the more readily flow forth, whereof they make great gaine. It fills up hollow Vlcers and cicatrizes them; wherefore it enters as a cheefe ingredient into artificiall ballame; frankincenſe alone made into powder and applyed, ſtanches the blood that flowes out of wounds.

Mathiolus ſaith, that it being mixed with Fullers earth, and oyle of Roſes, is a ſingular remedy againſt the inflammation of the breaſts of women, lately delivered of childe.

Chap. XVI.

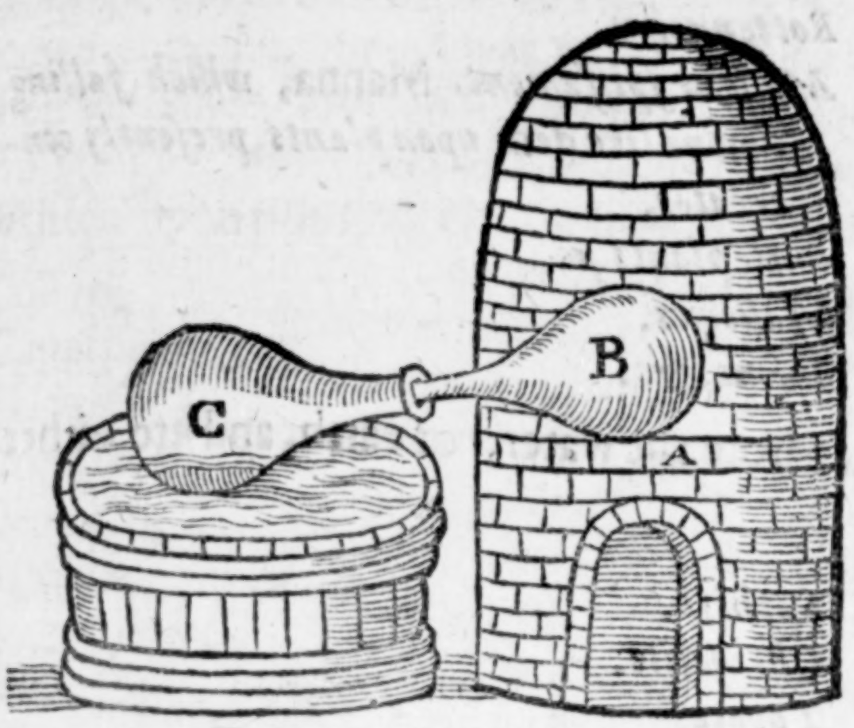
The making of oyle of Vitriall.

The ſigne of perfectly calcined vitrioll.

TAke ten pounds of Vitrioll, which being made into powder, put it into an earthen pot, and ſet it upon hot coales, untill it be calcined, which is when as it becomes reddiſh; after ſome five, or ſixe houres, when as it ſhall bee throughly cold, breake the pot, and let the vitrioll be againe made into powder, that ſo it may be calcined againe, and you ſhall doe thus ſo often and long untill it ſhall be perfectly calcined, which is when as it ſhall be exactly red; then let it be made into powder, and put into an earthen Retort, like that wherein *aqua fortis* is uſually drawne, adding for every pound of your calcined vitrioll of tile ſhreds, or powdered bricke 1 quarter; then put the Retort furniſhed with its receiver into a fornace of Reverberation, alwayes keeping a ſtrong fire, and that for the ſpace of 48 houres, more or leſſe according to the manner and plenty of the diſtilling liquor. You ſhall know the diſtillation is finiſhed when as the receiver ſhall begin to recover his native perſpicuity, being not now filled with vaporouſe ſpirits, wherewith as long as the humor diſtills it is repleniſhed and lookes white.

Now for the receiver there are 2 things to be obſerved. The firſt is, that it bee great and very capacious, that it may not be diſtended and broken by the abundant flowing of vaporous ſpirits, as it doth oft times happen; another thing is, that you ſet it in a veſſell filled with cold water, leaſt it ſhould be broken by being over hot; you may eaſily perceive all this by the enſuing figure.

A Fornace or Reverberation furniſhed with his Retort and Receiver.



A. *Shewes the Fornace.*

B. *The Retort.*

C. *The Receiver.*

D. *The veſſell ſilled with cold water.*

CHAP. XVII.

A table or Catalogue of medicines and inſtruments ſerving for the cure of Diſeaſes.

Medicines and medicinall meates fit for the cure of diſeaſes, are taken from living Creatures, plants and mineralls. From living creatures are taken,

Hornes.
Hooves.
Haires.
Feathers.
Shells.
Sculles.
Scailes.
Sweates.
Skinnes.
Fatts.
Fleſh.
Blood.
Entrailes.
Vrine.
Smells whether they be ſtincking or ſweete, as alſo poyſons: whole creatures themſelves, as,
Foxes.
Whelpes.
Hedgehogs.
Frogs.
Wormes.
Crabs.
Cray-fiſhes.
Scorpions.
Horſeleaches.
Swallowes.
Dungs.

Bones.
Extreame parts.
Hearts.
Liver.
Lungs.
Braine.
Wombe.
Secundine.
Teſticles.
Pizle.
Bladder.
Sperme.
Taile.
Coats of the Ventricle.
Expirations.
Briſtles.
Silke.
Webbes.
Teares.
Spittle.
Honey.
Waxe.
Egges.
Milke.
Butter.
Cheeſe.
Marrow.
Rennet.

From Plants, that is, Trees, ſhrubs, and hearbes are taken,

Roots.
Moſſe.
Pith.
Sions.

Buds.
Stalkes.
Leaves.
Floures.

Cups.
Fibers, or hairy threds.
Eares.
Seeds.
Barke.
Wood.
Meale.
Iuices.
Teares.
Oyles.
Gums.
Roſins.
Rottenneſſe.
Maſſe or ſpiſſament. Manna, *which falling downe like dew upon plants, preſently concreates.*
whole plants, as
Mallowes.
Onions, &c.

Mettalls, or mineralls, are taken either from the water, or earth, and are either kinds of earth, ſtones, or mettalls, &c.

The kinds of earth are,
Bole Armenicke.
Terra ſigillata.
Fullers earth.
Chaulke.
Okar.
Plaiſter.
Lime.
Now the kinds of ſtone are,
Flints.
Lapis judaicus.
Lapis Lyncis.
The Pumice.
Lap. Hæmatites.
Amiantus.
Galactites.
Spunge ſtones.
Diamonds.
Saphire.
Chryſolite.
Topace.
Loadſtone.
The Pyrites *or fire-ſtone.*
Alablaſter.
Marble.
Criſtall, and many other precious ſtones.
The kinds of Salts as well naturall as artficiare,
Common ſalt.
Sal nitrum.
Sal Alkali.
Sal Ammoniacum.
Salt of Vrine.
Salt of tartar and generally all ſalts that may be made of any kind of plants.

Thoſe that are commonly called mineralls are,

Marchaſite.
Antimony.
Muſcovy Glaſſe.
Tutty.
Arſnicke,
Orpiment,
Lazure, or blew,
Roſe agar.
Brimſtone:
Quicke ſilver,
White Coproſe,
Chalcitis,
Pſory.
Roman Vitrioll
Colcothar, *vitrioll, or greene Coproſe.*
Alumen ſciſſile, *Common Alome,*
Alumen rotundum. *Round Alome.*
Alumen liquidum.
Alumen plumoſum.
Boraxe, *or Burrace,*
Bitumen,
Naphtha.
Cinnabaris, *or Vermillion.*
Litharge of Gold.
Litharge of Silver
Chryſocolla.
Scandaracha.
Red Lead.
White Lead, and divers other

Now the Mettals themſelves are,

Gold,
Silver,
Iron,
Lead,
Tinne,
Braſſe,
Copper,
Steele.
Lattin and ſuch as ariſe from theſe, as the ſcailes, verdegreace, ruſt, &c.

Now from the waters, as the Sea, Rivers, Lakes and Fountaines, and the mud of theſe waters, are taken divers medicines, as white and red Corrall, Pearles and infinite other things which nature the handmayd of the great Architect of this world, hath produced for the cure of diſeaſes; ſo that into what part ſoever you turne your eyes, whether to the ſurface of the earth, or the bowels thereof, a great multitude of remedies preſent themſelves to your view. The choyſe of all which is taken from their ſubſtance, or quantity, quality, action, place, ſeaſon, ſmell, taſte, ſite, figure, and weight, other circumſtances, as *Sylvius* hath aboundantly ſhewed in his booke written upon this ſubject. Of theſe ſimples are made diverſe compoſitions, as,

Collyria.
Caputpurgia.
Eclegmata.
Dentifrices.
Dentiſcalpia.
Apophlegmatiſmi.
Gargariſmes.
Pills.
Boles.
Potions.
Emplaiſters.
Vnguents.
Cerates.
Liniments.
Embrocations.
Fomentations.
Epithemes.
Attractives:
Reſolvers.
Suppuratives:
Emollients.
Mundificatives:
Incarnatives.
Cicatriſers.
Purifiers.
Corroſives.
Agglutinatives.
Anodynes.
Apozemes.
Iuleps.
Syrupes.
Powders.
Tablets.
Opiates.
Conſerves.
Preſerves.
Confections.
Rowles.
Vomits.
Sternutatoryes.
Sudorifickes.
Glyſters.
Peſſaries.
Suppoſitoryes:
Fumigations.
Trochiſces.
Frontalls.
Cappes.
Stomichers.
Bagges.
Bathes.
Halfe-bathes.
Virgins-milke.
Fuci.
Pications.
Depilatoryes.
Veſicatoryes.
Potentiall cauteries.
Noſe-gayes.
Fannes.
Cannopyes, or extended cloathes to make winde.
Artificiall fountaines, to diſtill or droppe downe liquors.

Now theſe that are thought to be nouriſhing medicines are,

Reſtauratives
Culliſſes
Expreſsions
Gellyes
Ptiſans
Barly-creames
Ponadoes
Almond-milkes
Marchpaines
Wafers
Hydro ſacchar
Hydromel *and ſuch other drinkes.*
Mucilages
Oxymel
Oxycrate
Roſe Vinegar
Hydrælium
Metheglin
Cider
Drinke of Serviſſes
Ale
Beere
Vinegar
Verjuice
Oyle
Steeled water
Water brewed with bread crummes
Hippocras
Perry, and ſuch like.

Waters and diſtilled oyles,and divers other Chymicall extractions.

As the waters and oyles of hot,dry and aromaticke things, drawne in a copper Alembecke, with a cooler, with ten times as much water in weight as of hearbes; now the hearbes muſt be dry,that the diſtillation may the better ſucceede.

Waters are extracted out of flowres put in a Retort,by the heate of the Sunne,or of dung, or of an heape of preſſed out Grapes, or by *Balneo*, if there bee a receiver put and cloſely luted thereto. All kindes of ſalt of things calcined,diſſolved in water,and twiſe or thriſe filtred, that ſo they may become more pure and fit to yeeld oyle.

Other diſtillations are made either in Cellars by the coldneſſe or moyſture of the place, the things being layd either upon a marble, or elſe hangd up in a bagge;and thus is made oyle of Tartar, and of ſalts, and other things of An aluminous nature.

Bones muſt bee diſtilled by deſcent, or by the joyning together of veſſels. All woods,rootes,barkes, ſhells of fiſhes,and ſeedes, or graines, as of corne,broome, beanes,and other things whoſe juice cannot be got out by expreſſion, muſt bee diſtilled by deſcent, or by the joyning together of veſſells in a Reverberatory fornace.

Mettalls calcined and having acquired the nature of ſalt, ought to bee diſſolved and filtred, and then evaporated till they bee dry; then let them bee diſſolved in diſtilled vinegar,and then evaporated and dryed againe;for ſo they will eaſily diſtill in a Cellar upon a Marble, or in a bagge. Or elſe by putting them into a glaſſie retort,and ſetting it in ſand, and ſo giving fire thereto by degrees untill all the watery humidity be diſtilled;then change the receiver and lute another cloſe to the Retort, then encreaſe the fire above and below, and thus there will flow forth an oyle very red coloured; Thus are all metalline things diſtilled,as Alomes,ſalts,&c.

Gummes *axungiæ*, and generally all roſins are diſtilled by retort ſet in an earthen veſſell filled with Aſhes upon a fornace; now the fire muſt be encreaſed by little and little according to the different condition of the diſtilled matters.

The veſſels and Inſtruments ſerving for diſtillations are commonly theſe.

Bottomes of Alembeckes,
The heads of them, from whence the liquors droppe.
Refrigeratories.
Veſſels for ſublimation.
For Reverberation.
For diſtilling by deſcent.
Crucibiles and other ſuch.
Veſſells for Calcination.
Haire ſtrainers .
Bagges,
Earthen platters.
Veſſells for circulation, as
Pellicanes.
Earthen Baſons for filtring:
Fornaces.
The ſecret fornaces of Philoſophers:
The Philoſophers egge:
Cucurbites
Retorts
Bolt heads
Vrinalls
Receivers
Veſſells ſo fitted together that the lowermoſt receives the mouth of the uppermoſt, whence they may bee termed conjoyned Veſſells: They are uſed in diſtilling *per deſcenſum*.
Marbes exquiſitly ſmooth for diſtillations to be made in Cellars.
Pots to diſſolve calcined mettalls in.

A

A CATALOGVE OF THE Chirurgions Inſtuments mentioned in this whole worke.

RIngs wherein little Lancets lye hid, to open Impoſtumes.

Trunkes or hollow Inſtruments going with ſprings.

A vent, or cooler for the wombe made like a peſſary.

Hollow tents.

Sundry Cauteries, as flat round, ſharpe pointed, cutting, &c.

Conſtrictory rings to twitch or binde the Columella.

Speculum
Oris.
Ocul.
Ani.
Vteri.

A trunke or pipe with an actuall Cautery in it.

Crooked Knives.

A pipe in forme of a quill.

Divers truſſes with one, or more boulſters.

A ſhoulder-band to bee put about the necke, to hold up a truſſe.

A needle to draw through a golden wire, &c.

Pipes with feneſtells, and needles fit for ſutures.

Cutting mullets.

Mullets onely to hold and not to cut.

Mullets to take forth ſplinters of bones.

Mullets to draw teeth.

An inciſion knife.

Scrapers to plaine or ſmooth the bones, or elſe to cut them.

Cutting or hollow Scrapers.

A Leaden mallet to drive the ſcrapers or Chiſſels into the ſcull.

A Gimblet in ſhape and uſe reſembling that which Coopers uſe to lift up the ſunke ſtaves of their caske withall.

Levatories, of which kind is the three footed one.

Other Levatories, which taken by their handles, and their tongues put under the depreſt bones, lift them up.

Sawes.

A deſquamatory Trepan.

Plyers to take forth ſplinters of bones.

A Gimblet to perforate the ſcull.

A Trepan fit to divide the ſcull, with the ſcrew, peirnt or procer, brace, and cover or cap that keepes it from running in too farre.

A plate to ſet one foote of the compaſſe upon.

A cutting paire of Compaſſes both open and ſhut.

A fit inſtrument to depreſſe the *Dura Mater* without hurting thereof.

A ſyring to make injection withall.

A paire of Pincers with holes through them to take up the skinne for making a Seton.

Setons as well dry, as moyſtened with oyntments.

Crowes,
Parrots,
Swans,
Duckes,
Lizards,
Cranes,
Beakes, and theſe either
ſtraight,
crooked,
toothed, or
ſmooth.

Catch-bullets, and Plyers to draw forth peices of maile, and ſplinters of bones that lye deepe in.

Hollow and ſmooth Dilaters, diverſly made for the different wounds of the parts.

Probes fit for to put flamulaes into wounds; and theſe either ſtraight, or crooked, perforated, or unperforated.

Screwed mullets to draw forth barbed heads of Arrowes and the like.

Lancets to let blood, and ſcarrifie as well ſtraight, as crooked.

A *Pyulcos*, or Matter-drawer.

Ligatures, bands, ſwathes, thongs of Leather, woollen, linnen, round, ſlit, ſowne together; againe ſome are upper binders, others under binders.

Againe theſe are either expreiſing, or elſe conteining, and that either the applyed medicines, or the lips of wounds, or members put in a fit poſture, which therefore they call a ſarcoticke Ligature.

Thred.

Bottomes, or clewes of thred, or yarne.

Pledgets, compreſſes, boulſters, doubled cloathes.

Ferulæ, or Splints.

Caſſes.

Boxes.

Iuncke

Iunckes.

Gloſſocomies.

Ambi, a kinde of Gloſſocomie.

A pully, with its wheeles, and wooden and Iron pinnes, whereon the wheeles may runne:

Ropes aſwell to draw and extend, as hold up the member, &c.

Screw pins.

A hand-vice.

Hookes.

Buttons or ſtayes to faſten to the skinne to hold together the lippes of the wounds.

Linte.

Cuſhions, pillowes, linnen cloathes.

Files.

Dentiſcalpia, Dentifricia, Dentiſpicia.

Catheters, guiders of the worke.

A bathing chaire or ſeat, bathing tubbes, halfe tubs, caldrons, funnells, with all other circumſtances belonging to a bath.

Stoves, or hot houſes to ſweate in.

Cockes to turne and let out water.

A Gimblet to breake the ſtone.

Hookes.

Hollow probes ſlit on their upper ſides.

Winged Inſtruments to draw forth ſtones.

An inſtrument to clenſe the bladder.

Spathulaes ſtraight and crooked.

Cupping-glaſſes.

Hornes.

Pipes or catheters to weare Caruncles.

Artificiall members, as eyes of gold enamelled, &c.

An Vrinall, or caſe to ſave the water in.

An artificiall yard.

Crutches.

Niples, or leaden covers for ſore breaſts.

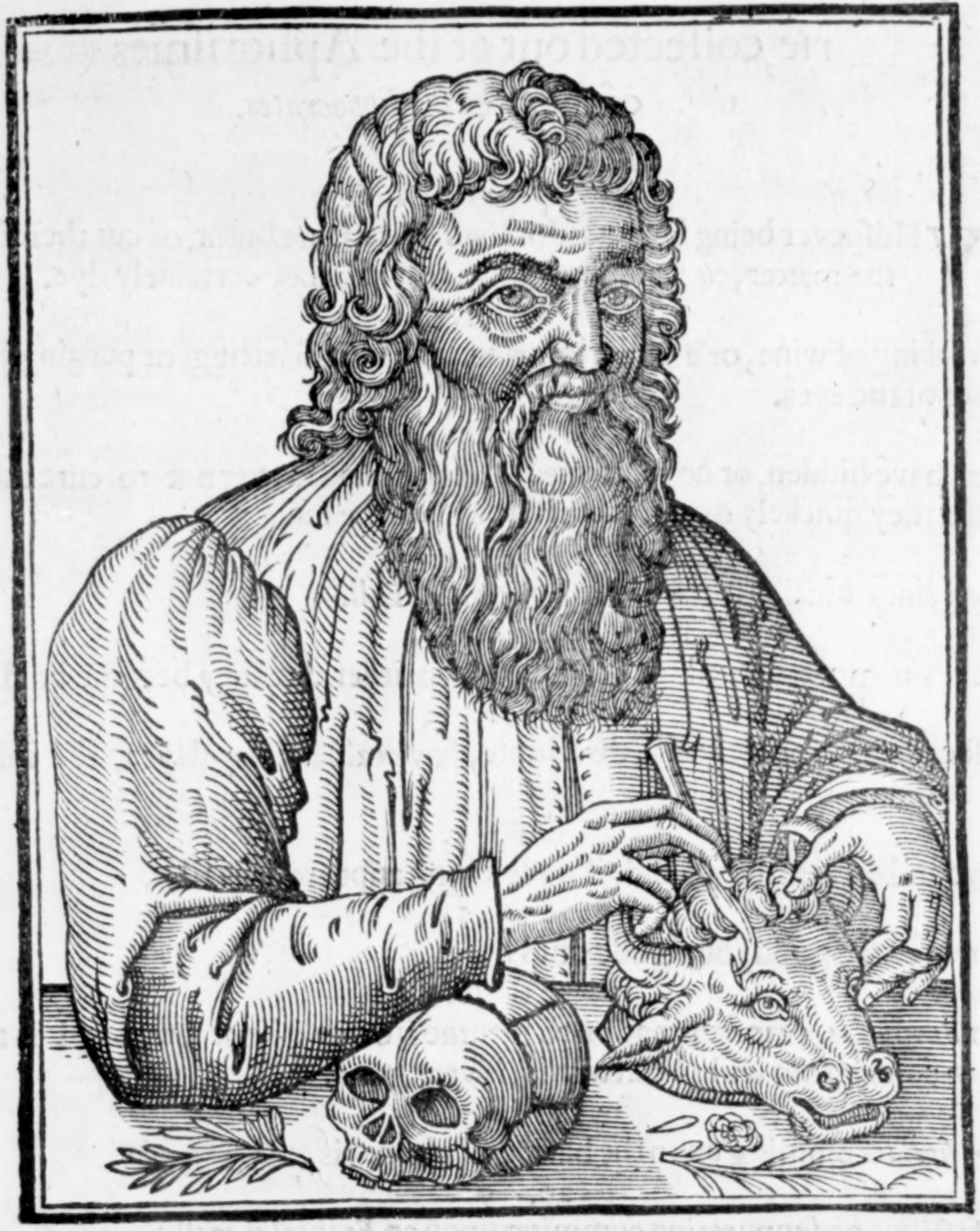
Griffins tallents to draw forth a *Mola*, out of the wombe.

A ſucking glaſſe to draw a breaſt withall.

Peſſaries, both long and ovall.

Syrings to give gliſters, as alſo to make injection into the eares, and wombe.

THE EFFIGIES OF HIPPOCRATES OF *COOS*, THE PRINCE OF PHYSITIONS.



INVICTUM (*Hippocrates*) *quòd te potuere ſuperbæ*
Eoi nunquam flectere Regis opes,
Cecropidæ fronti ex auro fulgente coronam
Promeriti memores impoſuere tuæ.
Gratia ſed levis eſt, Actæis tantus Athenis
Nec fuit hinc uni quàm tibi partus honos.
Nam quòd quæ recreent languentia corpora morbo
Pæonias fueris promere largus opes.
Sed tua tam fundit, quàm magni machiña mundi
Gratia, & inſignis tam tua fama volat.

BON. GRA. PARIS. MEDIC.

SELECT

SELECT APHORISMES CONCERNING CHIRVRGERIE, collected out of the Aphoriſmes of the great *Hippocrates*.

Aph. 27. *ſect.* 6.

VV Hoſoever being ſuppurate or hydropicall, are burnt, or cut therefore, if all the matter, or water flow forth at once, they certainely dye.

31. 6.

The drinking of wine, or a bath, fomentation, blood-letting, or purging, helpe the paines of the eyes.

38. 6.

Such as have hidden, or not ulcerated Cancers, had better not to cure them. For healed they quickely dye, not cured they live the longer.

55. 6.

Gouty paines uſually ſtirre in the Spring and Fall.

28. 6.

Eunuches are not troubled with the Goute, neither doe they become bald.

49. 6.

Whoſoever are troubled with the Goute, have eaſe in forty dayes, the inflammation ceaſing.

66. 5.

In great and dangerous wounds if no ſwelling appeare, it is ill.

67. 5.

Soft tumors are good, but crude ones ill.

25. 6.

For an *Eryſipelas*, or inflammation to returne from without inwards, it is not good; but to come from within outwards, is very good.

19. 7.

An *Eryſipelas* comming upon the baring of a bone, is evill.

20. 7.

Putrefaction, or ſuppuration comming upon an *Eriſipelas*, is ill.

21. 6.

If *Varices* or Hæmorrhoides happen to ſuch as are mad, their madneſſe ceaſes.

21. 7.

A fluxe of blood enſuing upon a great pulſation in Vlcers is ill.

26. 2.

It is better that a feaver happen upon a convulſion, than a convulſion upon a feaver.

4. 6.

Thoſe Vlcers that have the skinne ſmooth or ſhining about them, are evill.

18. 6.

The wound is deadly whereby the bladder, braine, heart, midriffe, any of the ſmall Guts, ſtomacke or Liver are hurt.

45. 6.

Whatſoever Vlcers are of a yeares continuance or more, the bone muſt neceſſarily ſcaile, and the ſcarres become hollow.

2. 7.

The bone being affected, if the fleſh be livide, it is ill.

14. 7.

Stupidity and lacke of reaſon, upon a blow of the head, is evill.

24. 7.

A *Delirium* happens if a bone (to wit, the ſcull) bee cut even to the hollowneſſe thereof.

Whileſt

Whilſt *Pus*, or matter is in generating, paines and feavers happen rather than when it is already made.

18. 5.

Cold things are hurtfull to the bones, teeth, nerves, braine, ſpinall marrow, but hot things are good.

46. 2.

Two paines infeſting together, but not the ſame place, the more vehement obſcures the other.

74. 7.

A corruption and abſceſſe of the bone is cauſed by the corruption of the fleſh.

506. *Coacar. prænot.*

A livid or dry Vlcer, or yellowiſh, is deadly.

19. 6.

When as a bone, or griſtle, or nerve, or ſmall portion of the cheeke, or the prepuce is cut aſunder, it neither encreaſes, nor growes together.

24. 6. *Aph. &* 513. *Coacar.*

If any of the ſmall guts be cut, it knits not againe.

50. 7.

Thoſe that have the braine ſphacelate, that is, corrupt, they dye within three dayes; if they eſcape theſe, they recover.

9. 7.

Bleeding at a wound cauſing a Convulſion, is the foreteller of death.

20. 5.

Cold is biting to Vlcers, hardens the skin, cauſes paine, not eaſily comming to ſuppuration, blackneſſe, aguiſh ſhakings, convulſions, crampes.

508. *Coac.*

Thoſe who have the temples cut, have a Convulſion upon the parts contrary to the ſection.

44. 7.

Whoſoever being ſuppurate are burnt or cut, if pure and white quitture ſhall flow forth they eſcape; but if that which is bloody, feculent, and ſtinking, then they dye.

Galen. comment. ad Aphor. 29. 2.

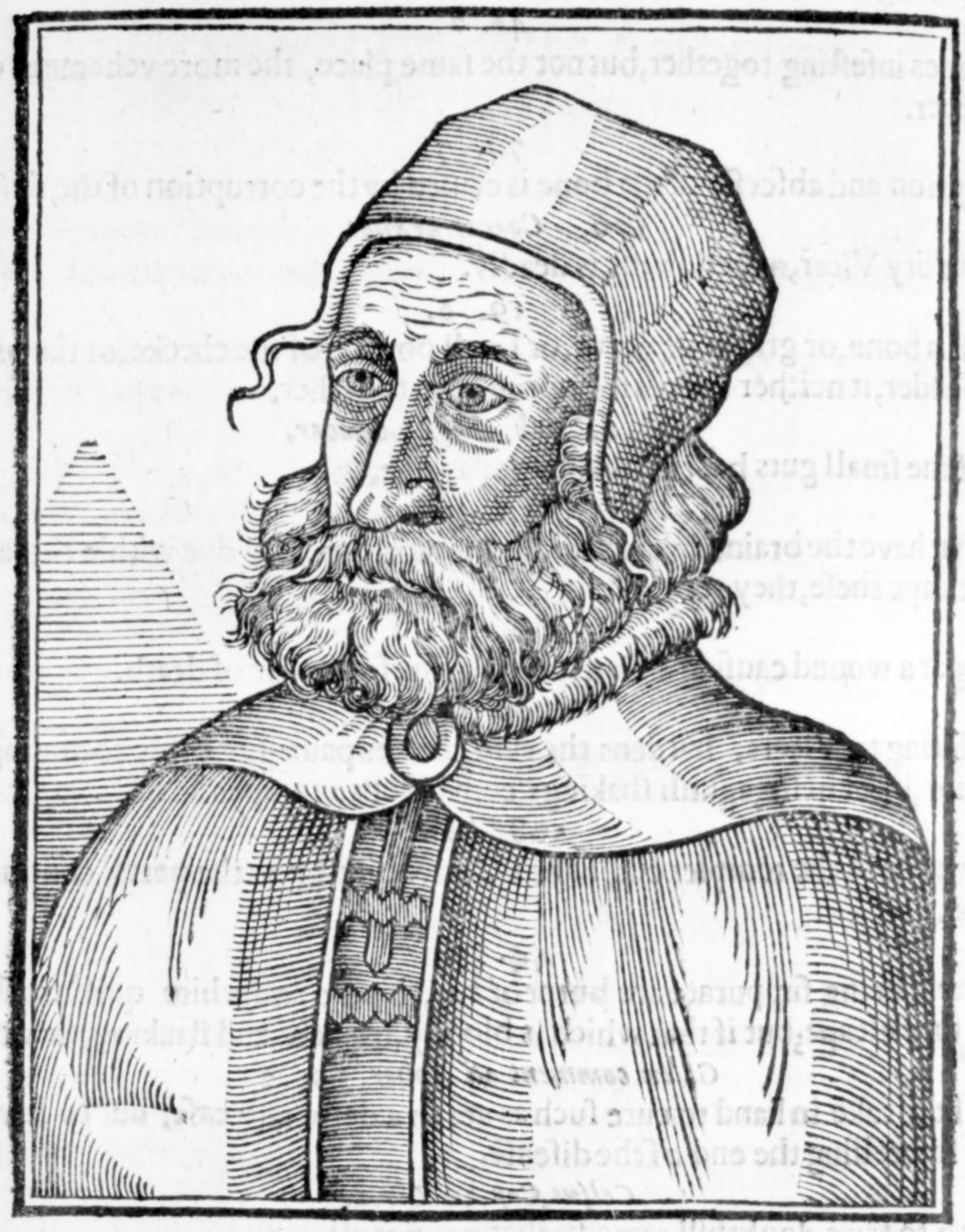
It is not fit to take in hand to cure ſuch as are in a deſperate caſe, but to leave them, onely foretelling the end of the diſeaſe.

Celſus, Cap. 10. *Lib.* 2.

It is better to try a doubtfull remedy than none at all.

FINIS.

THE EFFIGIES OF GALEN THE PRINCE OF PHYSITIONS NEXT TO HIPPOCRATES.



AEQVVM erat Hippocratem divino è ſemine Divûm,
Orbem muneribus conciliare ſibi:
Scripta ſed involuit tam multo ænigmate, verum
Vt quamvis ſolers nullus habere queat;
Pergamei auxilio niſi ſint monimenta Galeni,
Qui docta ambages ſuſtulit arte ſenis.
Ergo macte eſto virtute, arcana reſolvens,
Quæ nulli fuerant nota (Galene) prius;
Obſtringenſque orbem æterno tibi munere totum,
Æternis ſacras te quoq; temporibus.

BON, GRA. PARIS. MEDIC.

RVLES OF CHIRVRGERY BY THE AVTHOR.

1

PRactiſe is an operation agreeable to the rules and lawes of the Theory.

2

Health is not received by words, but by remedies fitly uſed.

3

Remedies knowne and approved by uſe and reaſon, are to be preferred before ſuch as are unknowne, or but lately found out.

4

Science without experience gets the Phyſition no great credit with the patient.

5

Hee that would performe any great and notable worke, muſt diligently apply himſelfe to the knowledge of his ſubject.

6

It is the part of a good Phyſition to heale the diſeaſe, or certainly to bring it to a better paſſe, as nature ſhall give leave.

7

The Chirurgion muſt be active, induſtrious, and well handed, and not truſt too much to bookes.

8

He that hath not beene verſed in the operations of the Art, nor a frequent auditor of the Lectures of ſuch as are learned therein, and ſets forth himſelfe for a brave Chirurgion for that hee hath read much, he is either much deceived or impudent.

9

He ſhall never doe any thing praiſe-worthy, that hath got his maſtery in Chirurgery by gold, not by uſe.

10

You ſhall comfort the patient with hope of recovery, even when as there is danger of death.

11

To change Phyſitions and Chirurgions is troubleſome, but not good for the Patient.

12

Though the diſeaſe prove long, yet it is not fit that the Phyſition give over the patient.

13

Great wounds of large veſſells, are to be judged deadly.

14

Every contuſion muſt be brought to ſuppuration.

15

As the nature or kind of the diſeaſe muſt bee knowne; ſo alſo muſt the remedy.

16

An Abſceſſe of the bone of the pallate, is in danger to cauſe a ſtinking breath.

17

Bleeding cauſed by heate muſt be repreſt by cold.

18

Wounds of nervous parts require medicines which by the ſubtlety of the parts may enter in and draw from farre.

19

It is not fit for ſuch as have Vlcers in their Legges, neither to walke, ſtand nor ſit, but to reſt themſelves in bed.

20

All biting and acrid medicines are offenſive to cleane Vlcers.

21

For reſtoring of diſlocations you muſt hold them faſt, ſtretch them out, and force them in.

22

A great Gangreene admits no cure, but cutting.

23

A monſter is a thing diſſenting from the lawes of nature.

24

Wounds of the Cheſt preſently become ſanious and purulent.

25

The wounds made by all venemous creatures are dangerous.

26

The ſouth wind blowing, wounded members eaſily become mortifyed.

27

Such as are wounded, and deſire to bee quickly whole, muſt keepe a ſpare diet.

28

Vntemperate bodies doe not eaſily recover of diſeaſes.

29

Round Vlcers unleſſe they be drawne into another figure, doe not eaſily heale up.

30

An Eryſipelatous Vlcer requires purgation by ſtoole.

31

Crying is good for an infant, for it ſerves in ſtead of exerciſe and evacuation.

32

Greeſe is good for none but ſuch as are very fat.

33

Idleneſſe weakens and extinguiſheth the native heate.

34

An ill natured Vlcer yeelds not unleſſe to a powerfull remedy.

35

A bath reſolves and diſcuſſes humors, and gently procures ſweate.

36

Cold diſeaſes are troubleſome to old people, and hard to be helped; but in young bodies they are neither ſo troubleſome, nor contumacious.

37

Exerciſed bodies are leſſe ſubject to diſeaſes.

38

Moiſt bodies though they neede ſmall nouriſhment, yet ſtand they in neede of large evacuation.

39

Sicke people dye ſooner of an hot diſtemper than of a cold, by reaſon of the quicke and active operation of fire.

40

The quitture that flowes from an Vlcer is laudible, which is white, ſmooth and equall.

The end of the twentiſeaventh Booke.

HOVV TO MAKE REPORTS, AND TO EMBALME [illegible] EAD.

THE TVVENTIEIGHTH BOOKE.

Now it onely remaines that wee inſtruct the Chirurgion in making or framing his reporte, or opinion, eyther of the death of any perſon, or of the weakeneſſe, or deprivation of any member in the function or execution of its proper office and duty. Herein it is meete that hee be very conſiderate, that is to ſay, ingenious or wiſe in making his report, becauſe the events of diſeaſes are oftentimes doubtfull and uncertaine, neither can any man foretell them certainly, whether they will be for life or death, by reaſon of the manifold nature of the ſubject of which we ſpeake, and alſo the uncertaine condition of the humors both in their kind and motion. Which was the cauſe why *Hippocrates* even in the firſt of his Aphoriſmes pronounceth, that judgement is difficult. But firſt of all, it is very expedient that a Chirurgion be of an honeſt mind, that hee may alwayes have before his eyes a carefull regard of true piety, that is to ſay, the feare of God and faith in Chriſt, and love toward his neighbours with hope of life everlaſting, leaſt that hee being carried away by favour, or corrupted with money or rewards, ſhould affirme or teſtifie theſe wounds to bee ſmall that are great, and theſe great that are ſmall; for the report of the wound is received of the Chirurgion according to the civill Law.

Why a Chirurgion muſt be carefull in making of Reports.

Why judgement is difficult.

It is recorded in the workes of ancient Phyſitions that wounds may bee called great for three reſpects.

Wounds termed great for three reſpects,

The firſt is by reaſon of the greatneſſe of the diſſolved unitie or reſolution of Continuity, and ſuch are theſe wounds which made by a violent ſtroake with a backeſword, have cut off the arme, or legge, or overthwart the breaſt. The ſecond is by reaſon of the dignitie or worthineſſe of the part; now this dignity dependeth on the excellencie of the action; therefore thus any little wound made with a bodkin, knife, in any part whoſe ſubſtance is noble, as in the Braine, Heart, Liver or

How long a Chirurgion muſt ſuſpend his judgement in ſome caſes.

or any other part whoſe action and function is neceſſary to preſerve life, as in the Weaſant, Lungs or Bladder, is judged great. The third is, by reaſon of the greatneſſe and ill habit, or the abundance of ill humors or debility of all the wounded body; ſo thoſe woundes that are made in nervous parts, and old decayed people, are ſayd to be great. But in ſearching of wounds let the Chirurgion take heede that he be not deceived by his probe. For many times it cannot goe into the bottome of the wound but ſtoppeth, and ſticketh in the way, either becauſe he hath not placed the patient, in the ſame poſture, wherein he was when he received his hurt; or elſe for that the ſtroake being made downe right, ſlipt aſide to the right or left hand, or elſe from below upwards, or from above downewards, and therefore hee may expect that the wound is but little and will be cured in a ſhort time, when it is like to bee long in curing, or elſe mortall. Therefore from the firſt day it behooveth him to ſuſpend his judgement of the wound untill the ninth, for in that time the accidents will ſhew themſelves manifeſtly, whether they be ſmall or great, according to the condition of the wound, or wounded bodyes, and the ſtate of the ayre according to his primitive qualities, or venomous corruption.

Generall ſignes whereby we judge of diſeaſes.

But generally the ſignes, whereby we may judge of diſeaſes, whether they bee great or ſmall, of long or ſhort continuance, mortall or not mortall, are foure. For they are drawne [illegible] nature, and eſſence of the diſeaſe, or from the cauſe or effects thereof, [illegible] the ſimilitude, proportion and compariſon, of thoſe diſeaſes with the ſeaſon or preſent conſtituti[illegible]he times. Therefore if wee are called to the cure of a greene wound, whoſe na[illegible]nd danger, is no other but a ſimple ſolution of Continuity in the muſculous fleſh, we may preſently pronounce that wound to be of no danger, and that it will ſoone be cured. But if it have an Vlcer annexed unto it, that is, if it be ſanious, then we may ſay it will be more difficult and long in the curing; and ſo we may pronounce of all diſeaſes, taking a ſigne of their eſſence and nature. But of the ſignes that are taken of the cauſes, let this bee an example. A wound that is made with a ſharpe pointed and heavie weapon, as with an halbeard being ſtricken with great violence, muſt be accounted great, yea and alſo mortall if the accidents be correſpondent.

Wounds deadly by the fault of the ayre.

But if the patient fall to the ground through the violence of the ſtroake, if a cholericke vomiting follow thereon, if his ſight faile him, together with a giddineſſe, if blood come forth at his eyes and noſthrills, if diſtraction follow with loſſe of memory and ſenſe of feeling, we may ſay; that all the hope of life, remaineth in one ſmall ſigne which is to be deduced from the effects of the wound. But by the comparing it unto the ſeaſon that then is, and diſeaſes that then aſſault mans body, wee may ſay, that all thoſe that are wounded with gunſhot are in danger of death, as it happened in the ſchirmiſhes at the ſeige of *Roan*, and at the battall of Saint *Deuis*. For at that time, whether it were by reaſon of the fault of the heavens, or ayre, through the evill humors of mans body, and the diſturbance of them; all wounds that were made by gunſhot, were for the moſt part mortall. So likewiſe at certaine ſeaſons of the yeare, we ſee the ſmall pockes and meaſels breake forth in children, as it were by a certaine peſtilent contagion to the deſtruction of children onely, inferring a moſt cruell vomit and laske, and in ſuch a ſeaſon the judgement of thoſe diſeaſes is not difficult.

Singnes of a fractured ſcull.

But you by the following ſignes may know what parts are wounded. If the patient fall downe with the ſtroake, if he lye ſenſeleſſe, as it were aſleepe, if he voyde his excrements unwittingly, if he be taken with giddineſſe, if blood come out at his eares, mouth, and noſe, and if he vomit choller, you may underſtand that the ſcull is fractured, or pearced through, by the defect in his underſtanding and diſcourſe. You alſo may know when the ſcull is fractured, by the judgement of your externall ſenſes, as if by feeling it with your finger you finde it elevated or depreſſed beyond the naturall limits, if by ſtriking it with the end of a probe, when the *Pericranium* or nervous filme that inveſteth the ſcull is cut croſſe wiſe; and ſo divided there from it, yeeld a baſe and unperfect ſound like unto a pot ſheard that is broken, or rather like unto an earthen pitcher that hath a cleft, or rent therein.

Signes of death by a wound on the head.

But we may ſay, that death is at hand if his reaſon and underſtanding faile him, if he be ſpeechleſſe, if his ſight forſake him, if he would tumble headlong out of his bed, being not at all able to moove the other parts of his body; if he have a continuall feaver, if his tongue be blacke with drieneſſe, if the edges of the wound bee blacke or dry, and caſt forth no ſanious matter, if they reſemble the colour of ſalted fleſh, if he have an apoplexie, phrenſie, convulſion or palſie with an involuntarie excretion, or abſolute ſuppreſſion of the Vrine and excrements. You may know that a man hath his throate, that is, his weaſon and winde pipe cut. Firſt by the ſight of his wound, and next by the aboliſhment of the function or office thereof both wayes, for the patient can neither ſpeake nor ſwallow any meate or drinke; and the parts that are cut aſunder, divide themſelves by retraction upwards or downewards one from another, whereof commeth ſodaine or preſent death. You may know that a wound hath peirced into the breſt or concavity, of the body, if the ayre come forth at the wound, making a certaine whizzing noyſe, if the patient breathe with great difficulty, if he feele a great heavineſſe or weight, on or about the midriffe, whereby it may be gathered that a great quantity of blood, lyeth on the place or midriffe, and ſo cauſeth him to feele a weight or heavineſſe, which by little and little, will bee caſt up by vomiting. But a little after a feaver commeth, and the breath is unſavory, and ſtinking, by reaſon that the putrefying blood is turned into *ſanies*: the patient cannot lye but on his backe, and he hath an often deſire to vomit, but if hee eſcape death, his wound will degenerate into a Fiſtula, and at length will conſume him by little and little.

Signes that the throate is cut.

Signes that a wound hath pierced in the capacity of the cheſt.

We may know that the Lungs are wounded, by the foaming and ſpumous blood, comming out both at the wound and caſt up by vomiting; hee is vexed with a greevous ſhortneſſe of breath and with a paine in his ſides. We may perceive the Heart to be wounded by the aboundance of blood that commeth out at the wound, by the trembling of all the whole body, by the faint and ſmall pulſe, paleneſſe of the face, cold ſweate, with often ſwounding, coldneſſe of the extreame parts, and ſuddaine death.

Signes that the Lungs are wounded.

That the heart is wounded.

When the midriffe (which the Latines call *Diaphragma*) is wounded, the patient feeleth a great weight in that place, he raveth and talketh idlely, he is troubled with ſhortneſſe of winde, a cough, and fit of greevous paine, and drawing of the entralls upwards. Wherefore when all theſe accidents appeare, we may certainely pronounce that death is at hand.

The midriffe.

Death appeareth ſodainely, by a wound of the hollow Veine, or the great Arterie, by reaſon of the great and violent evacuation of blood and ſpirits, whereby the functions of the Heart and Lungs are ſtopped and hindred.

The *Vena Cava* and great Artery.

The marrow of the backebone being pierced, the patient is aſſaulted with a Palſie or convulſion very ſuddainely, and ſence and motion faileth in the parts beneath it, the excrements of the bladder, are either evacuated againſt the patients will, or elſe are altogether ſtopped.

The ſpinall marrow.

When the Liver is wounded, much blood commeth out at the wound, and pricking paine diſperſeth it ſelfe even unto the ſword-like griſtle, which hath its ſituation at the Lower end of the breſt bone called *Sternon*: the blood that falleth from thence downe into the inteſtines doth oftentimes inferre moſt maligne accidents, yea and ſometimes death.

The Liver.

When the ſtomacke is wounded, the meate and drink come out at the wound, there followeth a vomiting of pure choler, then commeth ſweating and coldneſſe, of the extreame parts, and therefore we ought to prognoſticate death to follow ſuch a wound.

The ſtomacke.

When the milt or ſpleene is wounded, blacke and groſſe blood cometh out at the wound, the patient will be very thirſty, with paine on the left ſide, and the blood breakes forth into the belly, and there putrifying cauſeth moſt maligne and greevous accidents and often times death to follow.

The ſpleene.

When the guts are wounded, the whole body is griped and pained, the excrements come out at the wound, whereat alſo often times the guts breake forth with great violence.

The guts.

When the reines or Kidnyes are wounded, the patient will have great paine in making his Vrine, and the blood commeth out together therewith, the paine commeth downe even unto the groine, yard, and teſticles.

The kidneyes.

When

The bladder. When the bladder and Vreters are wounded, the paine goeth even unto the entralls; the parts all about, and belonging to the groine are diſtended, the Vrine is bloody that is made, and the ſame alſo commeth often times out at the wound.

The womb. When the wombe is wounded, the blood commeth out at the privities, and all other accidents appeare, like as when the bladder is wounded.

The Nerves. When the ſinewes are pricked or cut halfe aſunder, there is great paine in the affected place, and there followeth a ſuddaine inflammation, fluxe, abſceſſe, feaver, convulſion, and oftentimes a gangreene or mortification of the part, whereof commeth death, unleſſe it be ſpeedily prevented.

Having declared the ſignes and tokens of wounded parts, it now remaineth that we ſet downe other ſignes of certaine kindes of death that are not common, or naturall, whereabout when there is great ſtrife and contention made, it oftentimes is determined and ended by the judgement of the diſcreete Phyſition or Chirurgion.

Signes that an infant is ſmothered, or over-layd. Therefore if it chance that a nurſe either through drunkenneſſe, or negligence, lyes upon her infant lying in bed with her, and ſo ſtifles or ſmothers it to death. If your judgement be required, whether the infant dyed through the default, or negligence of the nurſe? or through ſome violent or ſuddaine diſeaſes that lay hidden and lurking in the body thereof? You ſhall finde out the truth of the matter by theſe ſignes following.

For if the infant were in good health before, if he were not froward or crying, if his mouth and noſethrills now being dead, be moyſtned or bedewed with a certaine foame, if his face be not pale but of a Violet or purple colour; if when the body is opened the Lungs be found ſwolne and puffed up, as it were with a certaine vaporous foame and all the other entralls ſound, it is a token that the infant was ſtifled, ſmothered or ſtrangled by ſome outward violence.

If the body or dead corpes of a man be found lying in a field, or houſe alone, and you be called by a magiſtrate to deliver your opinion, whether the man were ſlaine by lightning or ſome other violent death? you may by the following ſignes finde out the certainety hereof.

Signes of ſuch as are ſlaine by Lightning. For every body that is blaſted, or ſtriken with lightning, doth caſt forth or breathe out an unholſome, ſtinking or ſulphureous ſmell, ſo that the birdes or fowles of the ayre, nor dogges will not once touch it, much leſſe prey or feede on it: the part that was ſtricken often times ſound, and without any wound, but if you ſearch it well, you ſhall finde the bones under the skinne to be bruiſed, broken or ſhivered in peeces.

Lib.2.cap.54. But if the lightening hath pierced into the body, which making a wound therein (according to the judgement of *Pliny*) the wounded part is farre colder than all the reſt of the body. For lightning driveth the moſt thinne and fiery ayre before it, and ſtriketh it into the body with great violence, by the force whereof the heate that was in the part is ſoone diſperſed, waſted and conſumed. Lightening doth alwayes leave ſome impreſſion or ſigne of ſome fire either by uſtion or blackneſſe: for no lightning is without fire.

Moreover whereas all other living creatures when they are ſtriken with lightening fall on the contrary ſide, onely man falleth on the affected ſide, if hee be not turned with violence toward the coaſt or region from whence the lightening came.

If a man bee ſtriken with lightening while he is aſleepe, hee will be found with eyes open; contrarywiſe, if hee be ſtriken while hee is awake, his eyes will be cloſed (as *Plinie* writeth.) *Philip Commines* writeth that thoſe bodyes that are ſtricken with lightning are not ſubject to corruption as others are.

Therefore in ancient time it was their cuſtome neither to burne, nor bury them, for the brimſtone which the lightning bringeth with it, was unto them in ſtead of ſalt, for that by the dryneſſe and fiery heate thereof it did preſerve them from putrefaction.

Alſo it may be enquired in judgement, Whether any that is dead and wounded, received theſe wounds alive or dead. Truely the wounds that are made on a living man, if he dye of them, after his death will appeare red and bloody, with the ſides or edges ſwollne, or pale round about: contrary wiſe, thoſe that are made in a dead man, will bee neither red, bloody, ſwollne, nor puffed up. For all the faculties and functions of life in the body doe ceaſe and fall together by death; ſo that thenceforth no ſpirits nor blood can be ſent, or flow unto the wounded place. Therefore by theſe ſignes which ſhall appeare, it may be declared that hee was wounded dead or alive.

Signes of wounds given to a living and dead man.

The like queſtion may come in judgement when a man is found hanged, whether he were dead, or alive. Therefore if he were hanged alive, the impreſſion or print of the rope will appeare red, pale, or blacke, and the skinne round about it will be contracted or wrinkled, by reaſon of the compreſſion which the cord hath made; alſo often times the head of the *aſpera arteria* is rent and torne, and the ſecond ſpondile, and the necke luxated or mooved out of his place. Alſo the armes and legges will be pale, by reaſon of the violent and ſodaine ſuffocation of the ſpirits: moreover there will be a foame about his mouth, and a foamie and filthy matter hanging out at his noſethrills, being ſent thither both by reaſon that the Lungs are ſodainely heated and ſuffocated, as alſo by the convulſive concuſſion of the braine like as it were in the falling ſickneſſe. Contrariwiſe, if he be hanged dead, none of theſe ſignes appeare: for neither the print of the rope appeares red or pale, but of the ſame colour as the other parts of the body are, becauſe in dead men the blood and ſpirits doe not flow to the greeved parts.

Signes whether one be hanged alive or dead.

Whoſoever is found dead in the waters, you ſhall know whether they were throwne into the water alive or dead. For all the belly of him that was throwne in alive, will be ſwollen, and puffed up by reaſon of the water that is contained therein; certaine clammie excrements come out at his mouth and noſethrills, the ends of his fingers will be worne and excoriated, becauſe that hee dyed ſtriving and digging or ſcraping in the ſand or bottome of the river, ſeeking ſomewhat whereon hee might take hold to ſave himſelfe from drowning. Contrariwiſe if he be throwne into the waters being dead before, his belly will not be ſwollne, becauſe that in a dead man all the paſſages and conduites of the body doe fall together, and are ſtopped and cloſed, and for that a dead man breathes not, there appeareth no foame nor filthy matter about his mouth and noſe, and much leſſe can the toppes of his fingers be worne and excoriated, for when a man is already dead, he cannot ſtrive againſt death.

Whether one found dead in the water came therein alive or dead.

But as concerning the bodies of thoſe that are drowned, thoſe that ſwimme on the upper part of the water being ſwollne or puffed up, they are not ſo by reaſon of the water that is contained in the belly, but by reaſon of a certaine vapour, into which a great portion of the humors of the body are converted by the efficacy of the putryfying heate. Therefore this ſwelling appeareth not in all men which doe periſh, or elſe are caſt out dead into the waters, but onely in them which are corrupted with the filthineſſe or muddineſſe of the water, long time after they were drowned; and are caſt on the ſhore.

But now I will declare the accidents that come to thoſe that are ſuffocated and ſtifled or ſmoothered with the vapour of kindled or burning charcoales, and how you may foretell the cauſes thereof by the hiſtory following. In the yeere of our Lord God 1575. the tenth day of May, I with *Robert Greanline* Doctor of Phyſicke, was ſent for by Maſter *Hamell* an advocate of the Court of Parlament of *Paris*, to ſee and ſhew my opinion on two of his ſervants, of whom the one was his Clarke, and the other his Horſe-keeper. All his family ſuppoſed them dead, becauſe they could not perceive or feele their Arteries to beate, all the extreame parts of their bodyes were cold, they could neither ſpeake nor move, their faces were pale and wanne, neither could they bee raiſed up with any violent beating or plucking by the haire, Therefore all men accounted them dead, and the queſtion was onely of what kind of death they dyed, for their maſter ſuſpected that ſome body had ſtrangled them, others thought that each of them had ſtopped one anothers winde with their hands; and others judged that they were taken with a ſodaine apoplexie. But I preſently enquired whether there had beene any fire made with Coales in the houſe lately,

Of ſuch as are ſmothered by Charcoales.

whereunto their maſter giving eare, ſought about all the corners of the chamber (for the chamber was very little and cloſe) and at laſt found an earthen panne with charcoale halfe burned; which when we once ſaw, we all affirmed with one voyce, that it was the cauſe of all this misfortune, and that it was the maligne fume and venemous vapour, which had ſmothered them, as it were by ſtopping the paſſages of their breath. Therefore I put my hand to the regions of their hearts, where I might perceive that there was ſome life remaining by the heat and pulſation that I felt though it were very little, wherefore we thought it convenient to augment and encreaſe it. Therefore firſt of all, artificially opened their mouthes, which were very faſt cloſed, and ſticking obſtinately together; and thereinto both with a ſpoone and alſo with a ſilver pipe, we put *aqua vita* often diſtilled with diſſolved *hiera* and treacle; when we had injected theſe medicines often into their mouthes, they began to moove and to ſtretch themſelves, and to caſt up and expell many viſcous excrementall and filthy humors at their mouth and noſtrells, and their Lungs ſeemed to be hot, as it were in their throates.

Therefore then we gave them vomitories of a great quantity of *Oxymel*, and beate them often violently on the laſt ſpondill of the backe, and firſt of the loynes, both with the hand and knee (for unto this place the orifice of the ſtomacke is turned) that by the power of the vomitory medicine, and concuſſion of the ſtomacke, they might be conſtrained to vomit. Neither did our purpoſe faile us, for preſently they voided clammie, yellow and ſpumous fleame and blood.

But wee not being content with all this, blowed up into their noſtrells out of a Gooſe quill, the powder of *Euphorbium*, that the expulſive faculty of the braine might be ſtirred up to the expulſion of that which oppreſſed it; therefore preſently the braine being ſhaken, or mooved with ſneeſing and inſtimulated thereunto by rubbing the chymicall oyle of mints on the pallate and on the cheekes, they expelled much viſcous and clammie matter at their noſtrells.

Then we uſed frictions of their armes, legges, and backe-bones; and miniſtered ſharpe gliſters, by whoſe efficacie the belly being abundantly looſened, they beganne preſently to ſpeake and to take things that were miniſtered unto them of their owne accord, and ſo came to themſelves againe.

In the doing of all theſe things, *Iames Guillemeau* Chirurgion unto the King, and of *Paris*, and *Iohn* of Saint *Germanes* the Apothecary, did much helpe and further us.

In the afternoone that the matter being well begunne might have good ſucceſſe, *Iohn Hautie*, and *Lewis Thibaut*, both moſt learned Phiſitions, were ſent for unto us, with whom we might conſult on other things that were to be done. They highly commending all things that we had done already, thought it very convenient that cordialls ſhould be miniſtered unto them, which by ingendering of laudable humors, might not onely generate new ſpirits, but alſo attenuate and purifie thoſe that were groſſe and cloudy in their bodies. The reſt of our conſultation was ſpent in the enquirie of the cauſe of ſo dire a miſchance. For they ſayd that it was no new or ſtrange thing, that men may be ſmothered with the fume and cloudy vapour of burning coales.

Lib.9.cap.12. lib.23. A hiſtory.

For we reade in the workes of *Fulgoſius*, *Volateranus* and *Egnatius*, that as the Emperour *Iovinian*, travelled in winter time toward Rome, he being weary in his journey, reſted at a Village called *Didaſtanes*, which divideth *Bithynia* from *Galatia*, where he lay in a chamber that was newly made, and plaiſtered with lime, wherein they burnt many coales, for to dry the worke or plaiſtering, that was but as yet greene on the walls or roofe of the chamber. Now he dyed the very ſame night being ſmothered or ſtrangled with the deadly and poyſonous vapour of the burned charcoale, in the midſt of the night; this happened to him in the eighth moneth of his reigne, the thirtyeth yeere of his age, and on the twentyeth day of Auguſt. But what neede we to exemplifie this matter by the ancient hiſtories, ſeeing that not many yeeres ſince three ſervants dyed in the houſe of *Iohn Bigine* goldſmith, who dwelleth at the turning of the bridge of the Change, by reaſon of a fire made of coales in a cloſe chamber, without a chimney where they lay. And as concerning the cauſes, theſe were alleaged. Many were of opinion that it happened by the default of the vapour proceeding from the burned coales, which being in a place voyd of all ayre or wind, inferres ſuch like accidents as the vapour of muſte or new wine doth, that is to ſay, paine, and giddineſſe of the head. For both theſe kindes of vapour beſides that they are crude, like unto thoſe things whereof they come, can alſo very ſuddainely obſtruct the originall of the Nerves, and ſo cauſe a convulſion, by reaſon of the groſſeneſſe of their ſubſtance.

For ſo *Hippocrates* writing of thoſe accidents that happen by the vapour of new wine, ſpeaketh. If any man being drunken doe ſuddainely become ſpeechleſſe and hath a convulſion, he dyeth unleſſe he have a feaver therewithall; or if he recover not his ſpeech againe when his drunkenneſſe is over.

Sect.5.Aph.5.

Even on the ſame manner the vapour of the coales aſſaulting the braine cauſed them to be ſpeechleſſe, unmoveable and voyde of all ſenſe, and had dyed ſhortly unleſſe by miniſtring and applying warme medicines into the mouth and to the noſethrells, the groſſneſſe of the vapour had beene attenuated, and the expulſive faculties mooved or provoked to expell all thoſe things that were noyſome: and alſo although at the firſt ſight the Lungs appeared to be greeved more than all the other parts, by reaſon that they drew the maligne vapour into the body, yet when you conſider them well, it will manifeſtly appeare that they are not greeved, unleſſe it be by the ſimpathy or affinity that they have with the braine when it is very greevouſly afflicted.

The proofe hereof is, becauſe preſently after, there followeth an interception or defect of the voyce, ſenſe and motion: which accidents could not bee unleſſe the beginning or originall of the nerves were intercepted or letted from performing its function, being burthened by ſome matter contrary to nature.

And even as thoſe that have an apoplexie doe not dye but for want of reſpiration, yet without any offence of the Lungs, even ſo theſe two young mens deathes were at hand, by reaſon that their reſpiration or breathing was in a manner altogether intercepted, not through any default of the Lungs, but of the braine and nerves diſtributing ſence and motion to the whole body and eſpecially to the inſtruments of reſpiration. Others contrariwiſe contended and ſayd, that there was no default in the braine, but conjectured the interception of the vitall ſpirits letted or hindered from going up unto the braine from the heart, by reaſon that the paſſages of the Lungs were ſtopped, to be the occaſion that ſufficient matter could not be afforded for to perſerve and feed the animall ſpirit. Which was the cauſe that thoſe young men were in danger of death, for want of reſpiration, without the which there can be no life.

The occaſion of the death of ſuch as have the apoplexie.

For the heart being in ſuch a caſe, cannot deliver it ſelfe from the fuliginous vapour that encompaſſeth it, by reaſon that the Lungs are obſtructed by the groſſeneſſe of the vapour of the coales, whereby inſpiration cannot well bee made, for it is made by the compaſſing ayre drawne into our bodyes: but the ayre that compaſſeth us doth that which nature endeavoureth to doe by inſpiration, for it moderateth the heate of the heart, and therefore it ought to bee endued with foure qualities. The firſt is, that the quantity that is drawne into the body bee ſufficient. The ſecond is, that it be cold, or temperate in quantity. The third is, that it be of a thinne and meane conſiſtence. The fourth is, that it be of a gentle and benigne ſubſtance.

But theſe foure conditions were wanting in the ayre which theſe two young men drew into their bodyes being in a cloſe chamber.

For firſt, it was little in quantity, by reaſon that ſmall quantity that was contained in that little cloſe chamber, was partly conſumed by the fire of coales, no otherwiſe than the ayre that is conteined in a cupping glaſſe is conſumed in a moment by the flame ſo ſoone as it is kindled.

Conditions of the ayre good to breath in.

Furthermore it was neither cold nor temperate, but as it were enflamed with the burning fire of coales.

Thirdly, it was more groſſe in conſiſtence than it ſhould bee by reaſon of the admixtion of the groſſer vapour of the coales: for the nature of the ayre is ſo that it may bee ſoone altered, and will very quickly receive the formes and impreſſions of thoſe ſubſtances that are about it.

Laſtly, it was noyſome and hurtfull in ſubſtance, and altogether offenſive to the aiery ſubſtance of our bodies. For Charcoale are made of greene wood burnt in pits under ground, and then extinguiſhed with their owne fume or ſmoake, as all Colliers can tell. Theſe were the opinions of moſt learned men although they were not altogether agreeable one unto another, yet both of them depended on their proper reaſons. For this at leaſt is manifeſt, that thoſe paſſages which are common to the breaſt and braine, were then ſtopped with the groſſeneſſe of the vapour of the coales: whereby it appeareth that both theſe parts were in fault, for as much as the conſent and connexion of them with the other parts of the body is ſo great, that they cannot long abide ſound and perfect without their mutuall helpe by reaſon of the loving and friendly ſympathy and affinitie that is betweene all the parts of the body one with another.

Wherefore the ventricles of the braine, the paſſages of the lungs and the ſleepie Arteries being ſtopped, the vitall ſpirit was prohibited from entring into the braine, and conſequently the animall ſpirit retained and kept in, ſo that it could not come or diſperſe its ſelfe through the whole body, whence happened the defect of two of the faculties neceſſary for life.

Of the ſignes of virginitie.

It many times happeneth and is a queſtion too frequently handled concerning womens maidenheads; whereof the judgement is very difficult. Yet ſome ancient women and Midwives will bragge that they aſſuredly know it by certaine and infallible ſignes. For (ſay they) in ſuch as are virgins there is a certaine membrane or parchment-like skin in the necke of the womb, which will hinder the thruſting in of the finger if it be put in any thing deepe, which membraine is broken when firſt they have carnall copulation, as may afterwards be perceived by the free entrance of the finger. Beſides, ſuch as are defloured have the necke of their womb more large and wide; as on the contrary, it is more contracted, ſtraite and narrow in virgins. But how deceitfull and untrue theſe ſignes and tokens are, ſhall appeare by that which followeth; for this membraine is a thing preternaturall, and which is ſcarce found to be in one of a thouſand from the firſt conformation. Now the necke of the womb will be more open or ſtraite according to the bigneſſe and age of the party. For all the parts of the body have a certaine mutuall proportion and commenſuration in a well made body.

Lib. de error. popul.

Ioubertus hath written, that at *Lectoure* in *Gaſconye*, a woman was delivered of a child in the ninth yeare of her age, and that ſhe is yet alive and called *Ioane du Perie* being wife to *Videau Beche* the receiver of the amercements of the King of *Navare*: which is a moſt evident argument, that there are ſome women more able to accompany with a man at nine yeares old, than many other at fifteene, by reaſon of the ample capacity of their wombe and the necke thereof; Beſides alſo, this paſſage is enlarged in many by ſome accident, as by thruſting their owne fingers more ſtrongly thereinto by reaſon of ſome itching, or by the putting up of a Nodule, or Peſſarie of the bigneſſe of a mans yard, for to bring downe the courſes. Neither to have milke in their breaſts is any certaine ſigne of loſt virginity; For *Hippocrates* thus writes; But if a woman which is neyther with child, nor hath had one, have milke in her breaſts, then her courſes have failed her.

Aph. 39. ſect. 5.

Lib. 4. de hiſt. animal. cap. 20.

Moreover, *Ariſtotle* reports that there be men who have ſuch plenty of milke in their breaſts, that it may be ſucked or milked out.

Lib. 12. de ſubtilit.

Cardan writes, that he ſaw at *Venice* one *Antony Buſſey* ſome 30. yeares old, who had milke in his breaſts in ſuch plenty, as ſufficed to ſuckle a child, ſo that it did not onely drop, but ſpring out with violence like a womans milke. Wherefore let Magiſtrates beware leaſt thus admoniſhed, they too raſhly aſſent to the reports of women. Let Phyſitions and Chirurgions have a care leaſt they doe too impudently bring magiſtrates into an errour, which will not redound ſo much to the judges diſgrace, as to theirs.

But if any deſire to know, whether one be poyſoned, let him ſearch for the Symptomes and ſignes in the foregoing and particular treatiſe of poyſons. But that this doctrine of making Reports may be the eaſier, I thinke it fit, to give preſidents, in imitation whereof the young Chirurgion may frame others. The firſt preſident ſhall be of death to enſue; a ſecond of a doubfull judgement of life and death; the third of an impotency of a member; the fourth of the hurting of many members.

A certificate of death.

I *A. P.* Chirurgion of *Paris*, this twentieth day of May by the command of the Counſell, entred into the houſe of *Iohn Broſſey*, whom I found lying in bed, wounded on his head, with a wound in his left temple, piercing the bone with a fracture and effracture, or depreſſion of the broken bone, ſcailes and *meninges* into the ſubſtance of the braine, by meanes whereof, his pulſe was weake, he was troubled with raving, convulſion, cold ſweate, and his appetite was dejected. Whereby may bee gathered that certaine and ſpeedy death is at hand. In witneſſe whereof I have ſigned this Report with my owne hand.

Another in a doubtfull caſe.

By the Coroners command I have viſited *Peter Lucey*, whom I found ſicke in bed, being wounded with a Halbard on his right thigh. Now the wound is of the bredth of three fingers, and ſo deepe that it pierces quite through his thigh with the cutting alſo of a veine and Artery, whence enſued much effuſion of blood, which hath exceedingly weakned him, and cauſed him to ſwound often; now all his thigh is wollne, livide, and gives occaſion to feare worſe ſymptomes, which is the cauſe that the health and ſafety of the party is to be doubted of.

In the loſſe of a member.

By the Iuſtices command I entred into the houſe of *Iames Bertey*, to viſite his owne brother; I found him wounded in his right harme, with a wound of ſome foure fingers bigneſſe, with the cutting of the tendons bending the legge, and of the Veines, Arteries, and Nerves. Wherefore I affirme that he is in danger of his life, by reaſon of the maligne ſymptomes that uſually happen upon ſuch wonnds, ſuch as are great paine, a feaver, inflammation, abſceſſe, convulſion, gangreene and the like. Wherefore he ſtands in neede of provident and carefull dreſſing, by benefit wherof if he eſcape death, without doubt he will continue lame, during the remainder of his life, by reaſon of the impotency of the wounded part. And this I affirme under my hand.

Another in the hurts of divers parts.

We the Chirurgions of *Paris*, by the command of the Senate, this twentieth day of March, have viſited Maſter *Lewis Vertoman*, whom wee found hurt with five wounds. The firſt inflicted on his head, in the middle of his forehead bone, to the bigneſſe of three fingers, and it penetrates even to the ſecond table, ſo that we were forced to plucke away three ſplinters of the ſame bone. The other was atwhart his right cheeke, and reacheth from his eare, to the midſt of his noſe, wherefore wee ſtitched it with foure ſtitches. The third is on the midſt of his belly, of the bigneſſe of two fingers, but ſo deepe that it aſcends into the capacity of the belly, ſo that we were forced to cut away portion of the Kall, comming out thereat, to the bigneſſe of a wallnut, becauſe having loſt its naturall colour, it grew blacke and putrified. The fourth was upon the backe of his left hand, the bigneſſe almoſt of foure fingers, with the cutting of the Veines, Arteries Nerves and part of the bones of that part; whence it is, that he will be lame of that hand, howſoever carefully and diligently healed.

Now becauſe by hurting the ſpinall marrow, men become lame, ſometimes of a legge; it is fit you know that the ſpinall marrow deſcends from the braine like a rivelet for the diſtribution of the Nerves, who might diſtribute ſenſe and motion to all the parts under the head; wherefore if by hurting the ſpinall marrow, the patients armes or hands are reſolved or numme, or wholy without ſenſe, it is a ſigne theſe Nerves are hurt which come forth of the fifth, ſixth, ſeaventh *vertebræ* of the necke. But if the ſame accidents happen to the thigh, legge or foote with refrigeration, ſo that the excrements flow unvoluntarily, without the patients knowledge, or elſe are totally ſuppreſt, it is a ſigne that the ſinewes which proceed from the *vertebræ* of the loynes and holy-bone are hurt or in fault; ſo that the animall faculty beſtowing ſenſe and motion upon the whole body, and the benefit of opening and ſhutting to the ſphincter muſcle of the bladder and fundament, cannot ſhew its ſelf in theſe parts, by which meanes ſuddaine death happens, eſpecially if there be difficulty of breathing therewith.

A caution in making report of a woman with child being killed.

Being to make report of a child killed with the mother, have a care that you make a diſcreete report, whether the childe were perfect in all the parts and members thereof, that the judge may equally puniſh the author thereof. For he meriteth farre greater puniſhment, who hath killed a child perfectly ſhaped and made in all the members; that is, he which hath killed a live childe, than he which hath killed an *Embryon*, that is, a certaine concretion of the ſpermaticke body. For *Moſes* puniſheth the former with death, as that he ſhould give life for life, but the other with a pecuniary mulcte. But I judge it fit to exemplifie this report by a preſident.

I *A. P.* by the Iudges command viſited Miſtris *Margaret Vlmary*, whom I found ſicke in bed, having a ſtrong feaver upon her, with a convulſion and effluxe of blood out of her wombe, by reaſon of a wound in her lower belly, below her navill on the right ſide, penetrating into the capacity of her belly, and the wombe therein; whence it hath come to paſſe, that ſhe was delivered before her time, of a male childe, perfect in all his members but dead, being killed by the ſame wound piercing through his ſcull, into the marrow of the braine. Which in a ſhort time will be the death of the mother alſo. In teſtimony whereof I have put my hand and ſeale.

The manner how to Embalme the dead.

I Had determined to finiſh this my tedious worke with the precedent treatiſe of Reports; but a better thought came in my head, which was, to bring man whoſe cure I had undertaken, from his infancie, to his end, and even to his grave, ſo that nothing might be heere defective which the Chirurgion might by his profeſſion, performe about mans body either alive, or dead. Verily there hath ſcarſe ever beene a nation ſo barbarous, which hath not onely beene carefull for the buriall, but alſo for the Embalming or preſerving of their dead bodyes. For the very *Scythians*, who have ſeemed to exceede other nations in barbarouſneſſe, and inhumanity, have done this; for (according to *Herodotus*) the *Scythians* bury not the corpes of their King, before that being embowelled and ſtuffed full of beaten Cypreſſe, frankincenſe, the ſeedes of Perſly, and Anniſe, hee be alſo wrapped in cearcloathes. The like care hath alſo poſſeſſed the mindes of the *Ethiopians*; for having disburdened the corpes of their friends, of their entrails and fleſh, they plaiſtered them over, and then having thus rough caſt them, they painted them with colours ſo to expreſſe the dead to the life; they incloſed them thus adorned in a hollow pillar of glaſſe, that thus incloſed they might be ſeene and yet not anoy the ſpectators with their ſmell. Then were they kept the ſpace of a yeere, in the hands of their next kindred; who during this ſpace offered and ſacrifized to them. The yeare ended, they carryed them forth of the Citty and placed them about the walls each in his proper vault, as *Herodotus* affirmes. But this pious care of the dead, did farre otherwiſe affect the *Ægyptians*, than it did other nations. For they were ſo ſtudious to preſerve the memory of their anceſtors, that they embalmed their whole body with aromaticke oyntments, and ſet them in tranſlucent Vrnes, or glaſſe Cells in the more eminent and honoured part of their houſes, that ſo they might have them dayly in their ſight, and might be as monuments, and inciters to ſtirre them up to imitate their fathers and Grandſires vertues. Beſides alſo the bodyes thus embalmed with aromatick & balſamick oyntments were in ſteed of a moſt ſure pawn, ſo that if any *Ægyptian* had neede of a great ſum of money, they might eaſily procure it, of ſuch as knew them & their neighbours, by pawning the bodye of ſome of their dead parents. For by this meanes the creditour was certaine, that he which pawned it would ſooner looſe his life, than break his promiſe: But if all things ſo unhappily ſucceeded with any, ſo that through poverty he could not fetch home his pawne againe, but was forced to forgoe it, he was ſo infamous amongſt all men, during the reſt of his life, as one baniſhed, or forlorne; and looſing his freedome he ſhall become a ſervant, yea ſcorned and reviled of all men, he ſhould be accounted unworthy to enjoy the light and ſociety of men. And certainely the *Ægyptians* underſtanding the life, which we heere lead, to be of ſhort continuance, compariſon being made with that which wee are to live after

The care of the *Scythians* in the Embalming their dead.

The like care of the *Ethiopians*.

Lib. 3.

Of the *Egyptians*.

The reaſon of building the *Egyptian* Pyramides;

Lib. 2:

after the ſeparation of the ſoule from the body, they were more negligent in building their houſes they dwelt in, but in raring the pyramides which ſhould ſerve them in ſteed of ſepulchers, they were ſo beyond reaſon ſumptuous and magnificent, that for the building of one of theſe edifices ſo renowned over all the world, which King *Cheopes* begun, a hundred thouſand men were every 3 moneths, for twenty yeeres ſpace there kept at worke: it was five furlongs, and being ſquare, each ſide was 800. foot long, and ſo much in height. Almoſt all the peeces of marble went to the building thereof, were thirty foote long, engraven and carved with various workemanſhip, as *Herodotus* reports. But before the bodyes were committed to theſe magnificent Sepulchers, they were carryed to the Salters and Embalmers, who for that purpoſe had allowance out of the publicke ſtocke. Theſe beſmeared them with Aromaticke, and balſamicke oyntments, and ſowed up the inciſions they made, then ſtrewed them over with ſalt, and then covered them with brine, for 70. dayes; which being expired, they waſhed them, being taken thence, and all the filth being taken off, they wrapped them in Cotton cloathes, glewed together with a certaine gumme; then their kinſemen placed them thus ordered in a wooden Coffinne carved like to a man. This was the ſacred and accuſtomed rite of embalming and burying dead bodyes amongſt the *Ægyptians* which were of the richer ſort. Our Countriemen the *French* ſtirred up with the like deſire, embalme the bodyes of their Kings and Nobles, with ſpices and ſweete oyntments. Which cuſtome they may ſeeme piouſly and chriſtianly to have taken from the Old and New Teſtament, and the ancient and laudible cuſtome of the Iewes; for you may reade in the New Teſtament that *Ioſeph* bought a fine linnen cloath, and *Nicodemus* brought a mixture of myrrhe and Aloes about 100. pound weight, that they might embalme and bury the body of *Ieſus Chriſt* our Saviour, for a ſigne and argument of the renovation and future integrity which they hoped for by the reſurrection of the dead. Which thing the Iewes had received by tradition from their anceſtors. For *Ioſeph* in the old Teſtament commaunded his Phyſitions, they ſhould embalme the dead body of his father with ſpices.

Iohn 19, 39:

Gen 50, 2.

The manner of embalming for the long continuance.

But the body which is to be embalmed with ſpices for very long continuance, muſt firſt of all be embowelled, keeping the heart apart, that it may bee embalmed and kept as the kinsfolkes ſhall thinke fit. Alſo the braine, the ſcull being divided with a ſaw, ſhall be taken out. Then ſhall you make deepe inciſions alongſt the armes, thighes, legges, backe, loynes and buttockes, eſpecially where the greater Veines and Arteries runne, firſt that by this meanes the blood may be preſſed forth, which otherwiſe would putrifie and give occaſion and beginning to putrefaction to the reſt of the body; and then that there may be ſpace to put in the aromaticke powders; the whole body ſhall be waſhed over with a ſpunge dipped in *Aqua vitæ*, and ſtrong vinegar, wherein ſhall be boyled wormewood, aloes, coloquintida, common ſalt and Alume. Then theſe inciſions, and all the paſſages and open places of the body, and the three bellyes ſhall be ſtuffed with the following ſpices groſſely powdered. ℞. *pul. roſar. chamæm. melil. balſami, menthæ, anethi, ſalviæ, lavend. roriſmar. majoran. thymi, abſinthij, cyperi, calami aromat. gentianæ, ireos florent. aſſæ odoratæ, caryophyll. nucis moſchat. cinamoni, ſtyracis, calamitæ. benjoini, myrrhæ, aloes, ſantal. omnium quod ſufficit.* Let the inciſions be ſowed up and the open ſpaces that nothing fall out; then forthwith let the whole body be anointed with Turpentine diſſolved with oyle of roſes and Chamomile, adding if you ſhall thinke it fit, ſome Chymicall oyles of ſpices, and then let it be againe ſtrewed over with the forementioned powder; then wrap it in a linnen cloath, and then in ceare-cloathes.

How to embalme bodyes when as we want ſpices.

Laſtly, let it be put in a Coffin of Lead, ſure ſoudred and filled up with dry ſweete hearbes. But if there be no plenty of the forementioned ſpices, as it uſuall happens in beſeiged townes, the Chirurgion ſhall be contented with the powder of quenched lime, common aſhes made of Oake wood.

Why the bodyes of our Princes, how well ſoever embalmed, corrupt in a few dayes.

For thus the body being over and above waſhed in ſtrong vinegar, or Lie, ſhall be kept a long time, if ſo be that a great and diſſolving heate doe not beare ſway, or if it be not put in a hot and moyſt place. And this condition of time and place is the cauſe why the dead bodyes of Princes and Kings, though embalmed with Art and coſt, within the ſpace of ſixe or ſeaven dayes, in which they are kept to bee ſhewed to the people after their embalming, doe caſt forth ſo greevous a ſent, that none can endure it; ſo that they are forced to be put in a leaden Coffinne. For the ayre which encompaſſeth them groweth ſo hot by reaſon of the multitude of people flowing to the ſpectacle, and the burning of lights night and day, that the ſmall portion of the native heate which remaineth being diſſipated, they eaſily putrefie, eſpecially when as they are not firſt moyſtened & macerated in the liquor of aromaticke things, as the *Ægyptians* anciently uſed to doe, ſteeping them in brine for 70 dayes, as I formerly told you out of *Herodotus*. I put in minde hereby, uſe, that ſo the embalming may become the more dureable, to ſteepe the bodyes (being embowelled, and pricked all over with ſharpe bodkinnes, that ſo the liquor hindring putrefaction may penetrate the deeper into them) in a wooden tubbe filled with ſtrong vinegar of the decoction of aromaticke and bitter things, as Aloes, Rue, Wormewood, and Coloquintida; and there keepe them for twenty dayes, pouring thereinto eleven or twelve pints of *Aqua vitæ*. Then taking it forth, and ſetting it on the feete, I keepe it in a cleare and dry place. I have at home the body of one that was hanged, which I begged of the Shriffe, embalmed after this manner, which remaines ſound for more than 25 yeeres, ſo that you may tell all the muſcles of the right ſide (which I have cut up even to their heads, and plucked them from thoſe that are next them for diſtinctions ſake, that ſo I may view them with my eyes, and handle them with my hands as often as I pleaſe, that by renuing my memory I may worke more certainely and ſurely, when as I have any more curious operation to be performed) the left ſide remaines whole, and the Lungs, Heart, *Diaphragma*, ſtomacke, ſpleene, kidneyes, beard, haires, yea and the nailes, which being pared, I have often obſerved to grow againe to their former bigneſſe.

And let this be the bound of this our immenſe labour, and by Gods favour our reſt; to whom Almighty, all-powerfull, immortall and inviſible, be aſcribed all honour and glory for ever, and ever, *Amen*.

Labor improbus omnia vincit.

The end of the Treatiſe of reports, and embalming the dead.

THE APOLOGIE AND TREATISE, CONTAINING THE VOYAGES MADE INTO DIVERS PLACES.

BY

Ambroſe Pare of *Laval* in *Maine*, Counſellor and cheefe Chirurgion to the King.

The Twentininth Booke.

Of what the Adverſary accuſeth the Author.

TRuely I had not put my hand to the penne, to write on ſuch a thing, were it not that ſome have impudently injured, taxed, and more through particular hatred, diſgraced me, than for zeale or love they beare to the publicke good; which was, concerning my manner of tying the Veines and Arteries, writing thus as followeth.

The words of the Adverſary.

Male igitur & nimium arroganter inconſultus & temerarius quidam, vaſorum uſtionem poſt emortui membri reſectionem a veteribus omnibus plurimum commendatam & ſemper probatam damnare auſus eſt, novum quendam deligandi vaſa modum, contra veteres omnes medicos ſine ratione, experientia & judicio docere cupiens, nec animadvertit majora multo pericula ex ipſa vaſorum deligatione quam acu partem ſanam profunde tranſfigendo adminiſtrari vult, imminere quàm ex ipſa uſtione. Nam ſi acu nervoſam aliquam partem, vel nervum ipſum pupugerit, dum ita novo & inuſitato modo venam abſurde conatur conſtringere, nova inflammatio neceſſario conſequetur, a qua Convulſio & a convulſione cita mors. Quorum ſymptomatum metu Galenus non ante tranſverſa vulnera ſuere audebat (quod tamen minus erat periculoſum) quàm muſculorum apoueuroſes denudaſſet. Adde quòd forcipes quibus poſt ſectionem iterum carnem dilacerat, cum retracta verſus originem vaſa ſe poſſe extrahere ſomniat, non minorem adferant dolorem quàm ignita ferramenta admota. Quod ſi quis laniatum expertus incolumis evaſerit, is Deo optimo maximo cuius Beneficentia crudelitate iſta & carniſicina liberatus eſt, maximas gratias habere & ſemper agere debet; which is thus: Ill then, and too arrogantly a certaine indiſcreet and raſh perſon would blame and condemne the cauterizing of veſſels after the amputation of a rotten and corrupted member, much praiſed and commended and alwayes approved by the Ancients; deſiring to ſhew and teach us without reaſon, judgement, and experience, a new way to tye the veſſels, againſt the opinion of the Ancient Phyſitions, taking no heede, nor being well adviſed, that there happens farre greater perills, and accidents, through this new way of tying

tying the veſſells (which he will have to be made with a needle, piercing deepely the ſound part) than by the burning and uſtion of the ſayd veſſells; for if the needle ſhall pricke any nervous part, yea the nerve it ſelſe, when he ſhall by this new and unaccuſtomed way abſurdly conſtraine the veine by binding it, there muſt neceſſarily follow a new inflammation; from an inflammation a convulſion, from a convulſion death: for feare of which accidents, **Galen** never durſt ſtitch tranſverſall wounds, (which notwithſtanding were leſſe dangerous) before he had diſcovered the Aponeuroſes of the muſcles. Moreover the pincers with which after the ſection, the fleſh is againe dilacerated, while he thinkes to draw the veſſells out which are drawne in toward their originall, bring no leſſe paine than the cautering irons doe. And if any one having experimented this new manner of cruelty have eſcaped danger, he ought to render thankes to almighty God for ever, through whoſe goodneſſe he hath beene freed from ſuch tyrannie, feeling rather his executioner than his methodicall Chirurgion.

The Authors anſwere.

O what ſweete words are heere for one, who is ſayd to be a wiſe and learned Doctor? he remembers not that his white beard admoniſheth him, not to ſpeake any thing unworthy of his age, and that he ought to put off and drive out of him all envie and rancor conceived againſt his neighbour. So now I will proove by authority, reaſon and experience, that the ſayd Veines and Arteryes ought to be tyed.

Autherities.

In the booke of Fiſtulaes of the fundament in the 3 chap. 5. booke 4. leafe.

AS for Authorities, I will come to that of that worthy man *Hippocrates*, who wils and commands the cure of Fiſtula's in the fundament by ligature, as well to conſume the calloſity, as to avoyd hemorragie.

2. Treatiſe chap. 17.

Galen in his method, ſpeaking of a fluxe of blood made by an outward cauſe, of whom ſee heere the words, It is (ſaith he) moſt ſure to tye the roote of the veſſell, which I underſtand to be that which is moſt neere to the Liver, or the heart.

Treatiſe 3. doct. 1. chap. 3

Avicen commands to tye the veine and the Arterie, after it is diſcovered, towards his originall.

Guido of *Cauliac*, ſpeaking of the wounds of the Veines and Arteries, injoyneth the Chirurgion to make the ligature in the veſſell.

In the 3 book chap. 4. of the matter of Chirurgery.

Maſter *Hollier* ſpeaking of a fluxe of blood, commands expreſſely, to tye the veſſells.

Wounds chap. 12.

Calmetheus in the chapter of the wounds in the Veines and Arteries, tells a moſt ſure way to ſtay a fluxe of blood, by ligature of the veſſell.

In the 26 chap. of the 5 book.

Celſus from whom the ſayd Phyſition hath ſnatched the moſt part of his booke, chargeth expreſſely, to tye the veſſells in a fluxe of blood happening to wounds, as a remedy moſt eaſie and moſt ſure.

In the 4. ch. of the 3 booke.

Veſalius in his Chirurgery, willeth that the veſſells be tyed in a fluxe of blood.

In the book 1 treatiſe.

Iohn de Vigo treating of a hemorragie in bleeding wounds, commands to tye the Veine, and the Artery.

In the 12. chap. of the 2. booke.

Tagaultius treating of the meanes to ſtay a fluxe of blood, commands to pinch the Veine or Artery with a Crow or Parrots bill, then to tye it with a very ſtrong thred.

In the 4. treat. 11 chap. 1. booke.

Peter of *Argillata* of *Bullongne*, diſcourſing of a fluxe of blood, and the meanes to ſtoppe it, giveth a fourth way expreſſely, which is made by ligature of the veſſells.

In the firſt booke 1 ſection 3. chap. 16. page 5 upon the 38. ch. of the booke of *Paul*.

Iohn Andreas a Cruce, a *Venetian*, makes mention of a method, to ſtay a fluxe of blood by the ligature of the veſſells.

D'Alechamp commands to tye the Veines, and Arteries.

See then (my little good man) the authorities which command you to tye the veſſells. As for the reaſons, I will debate of them.

In the book 2. ch. of Angealogie, leafe 76. In the booke 1 ch. of ſtiches.

The hemorragie (ſay you) is not ſo much to be feared in the ſection of the Call, as that of the Varices, and the inciſion of the temporall Arteries, as after the amputation of a member. Now you your ſelfe command, that in cutting the Varices, the fluxe of blood be ſtopped by the ligature of the veſſells. You command the ſame, ſpeaking of the ſtitch, with the amputation and ſection of the Call, changed by the outward ayre, ſee heere your owne words: After that muſt bee conſidered concerning the Call: for if there be any part corrupted, putrified, withered, or blackiſh; Firſt having tyed, for feare of a fluxe of blood, you doe not bid afterward to have it cauterized; but to ſay the truth, you have your eyes ſhut, and all your ſenſes dulled, when you would ſpeake againſt ſo ſure a method, and that it is not but through anger, and an ill will. For there is nothing which hath more power to drive reaſon from her ſeate, than choler and anger. Moreover when one comes to cauterize the diſmembred parts, oftentimes when the eſcar comes to fall off, there happens a new flux of blood: As I have ſeene divers times, not having yet beene inſpired by God, with ſo ſure a meanes then, when I uſed the heate of fire. Which if you have not found, or underſtood this method in the bookes of the Ancients, you ought not thus to tread it under your feete, and ſpeake unluckely of one who all his life hath preferred the profit of the Common-wealth before his owne particular. Is it not more than reaſonable to bee founded upon the ſaying of *Hippocrates*; upon whoſe authority you ſerve your ſelfe, which is thus? That what the medicament cureth not, the iron doth, and what the iron doth not amend, the fire exterminateth. It is a thing which ſavours not of a Chriſtian, to fall to burning at the firſt daſh without ſtaying for any more gentle remedies. As you your ſelfe write, ſpeaking of the conditions required in a Chirurgion to cure well; which paſſage you borrow from ſome other place: for that which may bee done gently without fire, is much more commended than otherwiſe. Is it not a thing which all ſchooles hold as a Maxime, that we muſt alwaies begin with moſt eaſie remedies, which if they be not ſufficient, we muſt then come to extreame, following the doctrine of *Hippocrates*? *Galen* commands in the place before alledged, to treate or dreſſe the diſeaſed quickly, ſafely, and with the leaſt of paine that is poſſible.

In the chapter of burning, 2 booke leafe 206.

In the firſt booke leafe the 5.

Galen in 4. booke of the *Meth.* and in the booke of Art of *Hippocrates Apho.* the 6. booke 1. In the booke of *arte parva.*

Let us come now to Reaſon.

Now ſo it is, that one cannot apply hot irons but with extreame and vehement paine in a ſenſible part, void of a Gangreene, which would be cauſe of a Convulſion, Feaver, yea oft times of death. Moreover, it would bee a long while afterwards before the poore patients were cured, becauſe that by the action of the fire there is made an eſchar, which proceeds from the ſubject fleſh, which being fallen, nature muſt regenerate a new fleſh in ſtead of that which hath beene burned, as alſo the bone remaines diſcovered and bare; and by this meanes, for the moſt part there remaines an Vlcer incurable. Moreover there is yet another accident. It happeneth that oftentimes the cruſt being fallen off, the fleſh not being well renewed, the blood iſſueth out as much as it did before. But when they ſhall be tyed, the ligature falls not off untill firſt the fleſh have very well covered them againe: which is prooved by *Galen*, ſaying, that eſcharoticke medicines which cauſe a cruſt or eſchar, whenſoever they fall off, leave the part more bare than the naturall habit requires. For the generation of a cruſt proceeds from the parts ſubject, and which are ſcituate round about it, being alſo burned, as I may ſay: wherefore by how much the part is burnt, by ſo much it looſeth the naturall heate. Then tell me when it is neceſſary to uſe eſcharoticke medicines, or cautering irons? Tis when the flux of blood is cauſed by eroſion, or ſome Gangreene or putrifaction. Now is it thus? In freſh bleeding wounds there is neither Gangreene nor putrifaction. Therefore, the cauteries ought not to be there applyed. And when the Ancients commanded to apply hot irons to the mouthes of the veſſells, it hath not beene onely to ſtay the flux of blood, but cheefely to correct the malignitie, or gangreenous putrifaction which might ſpoile the neighbouring parts. And it muſt be here noted, that if I had knowne ſuch accidents to happen, which you have declared in your booke, in drawing and tying the veſſells, I had never beene twice deceived; nor would I ever have left by my writings to poſteritie, ſuch a way of ſtopping a flux of blood: But I writ it after I had ſeene it done and did it very often, with happy ſucceſſe. See then what may happen through your inconſiderate counſell, without

Of what the eſchar is made.

In the 5 book of his *Meth.*

Words of the adverſary.

Propoſition of the Adverſary.

In the 5, booke ch. 26, and in the 7 booke ch. 33.

In the ch. of cutting booke the 2.

out examining, or ſtanding upon the facility of tying the ſayd veſſells. For ſee, heere's your ſcope and propoſition, to tye the veſſells after amputation is a new remedy, ſay you; then it muſt not be uſed, it is an ill argument for a Doctor.

But as for that (ſay you) one muſt uſe fire after the amputation of members, to conſume, and drie the putrifaction, which is a common thing in Gangreenes, and mortifications, that indeed hath no place here, becauſe the practiſe is to amputate the part above that which is mortified, and corrupted; as *Celſus* writes and commands, to make the amputation upon the ſound part, rather than to leave any whit of the corrupted. I would willingly aske you, if when a veine is cut tranſverſe, and that it is very much retracted towards the originall, whether you would make no conſcience to burne till that you had found the orifice of the veine, or artery; and if it be not more eaſie onely with a Crow bill to pinch and draw the veſſell, and ſo tie it? In which you may openly ſhew your ignorance, and that you have your minde ſeiſed with much rancor and choler. We daily ſee the ligature of the veſſells practiſed with happy ſucceſſe after the amputation of a part, which I will now verifie by experiences and hiſtories, of thoſe to whom the ſaid ligature hath beene made, and perſons yet living.

Experiences.

A notable hiſtory.

The operation of *Charbonell*.

In the 7, ſentence of the booke of Ulcers.

THe 16. day of *Iune* 1582. in the preſence of Maſter *Iohn Liebaud* doctor in the faculty of Phyſicke at *Paris*, *Claud Viard* ſworne Chirurgion, Maſter *Mathurin Huron*, Chirurgion of Monſieur *de Souvray*, and I, *Iohn Charbonell* maſter Barber Chirurgion of *Paris*, well underſtanding the *Theoricke*, and *Practicke* of Chirurgery, did with good dexterity amputate the left legge of a woman tormented the ſpace of three yeares with extreame paine, by reaſon of a great *Caries* which was in the bone *Aſtragal*, *Cyboides*, great and little *focile*, and through all the nervous parts, through which ſhe felt extreame and intollerable paines night and day: ſhe is called *Mary* of *Hoſtel*, aged 28 yeares, or thereabouts, wife of *Peter Herve*, Eſquire of the Kitchin to the Lady *Ducheſſe* of *Vzez*, dwelling in the ſtreete of *Verbois* on the other ſide Saint *Martin* in the fields, dwelling at the ſigne of the Saint *Iohns* head; where the ſayd *Charbonell* cut off the ſayd legge, the breadth of foure large fingers below the Knee, and after that he had inciſed the fleſh, and ſawed the bone, hee griped the Veine with the Crow bill, then the Artery, then tyed them; from whence I proteſt to God (which the company that were there, can witneſſe) that in all the operation which was ſodainely done, there was not ſpilt one porrenger of blood; and I bid the ſayd *Charbonell* to let it bleed more, following the precept of *Hippocrates*, that it is good in all wounds and alſo in inveterate ulcers, ſo let the blood runne; by this meanes, the part is leſſe ſubject to inflammation. The ſayd *Charbonell* continued the dreſſing of her, who was cured in two moneths, without any fluxe of blood happening unto her, or other ill accident; and ſhe went to ſee you at your lodging being perfectly cured.

Another hiſtory.

Operation done by Viard.

Another hiſtory of late memory, of a ſinging man of our Ladyes Church named maſter *Colt*, who broke both the bones of his legge which were cruſht in divers peeces, inſomuch that there was no hope of cure: to withſtand a gangreene and mortification, and by conſequence death. Monſieur *Helin* Doctor, Regent in the faculty of Phyſicke, a man of honour and of good knowledge, *Claud Viard*, and *Simon Peter*, ſworne Chirurgions of *Paris*, men well exerciſed in Chirurgery; and *Balthazar* of *Leſtre*, and *Leonard de Leſchenal*, Maſter Barber Chirurgions, well experimented in the operations of Chirurgery, were all of opinion to withſtand the accidents aforeſayd, to make entire amputation of the whole legge, a little above the broken & ſhivered bones & the torne nerves, veines, arteries; the operation was nimbly done, by the ſayd *Viard*, and the blood ſtancht by the ligature of the veſſells in the preſence of the ſayd *Helin*, and maſter *Tonſard* great Vicar of our Ladyes Church, and was continually dreſt by the ſayd *Leſchenal*, and I went to ſee him other whiles; he was happily cured without the application of hot irons, and walketh luſtily on a woodden legge.

Another Hiſtory.

IN the yeare 1583. the 10. day of *December*, *Touſſaim Poſſon* borne at *Ronieville*, at this preſent dwelling at *Beauvais* neare *Dourdan*, having his Legge all ulcered, and all the bones cariez'd and rotten, prayed me for the honor of God to cut off his Legge by reaſon of the great paine which he could no longer endure. After his body was prepared I cauſed his legge to be cut off, fowre fingers below the *rotula* of the knee, by *Daniel Powlet* one of my ſervants, to teach him and to imbolden him in ſuch workes; and there he readily tyed the veſſells to ſtay the bleeding, without application of hot irons, in the preſence of *Iames Guillemeau* ordinary Chirurgion to the King, and *Iohn Charbonell* maſter Barber Chirurgion of *Paris*: and during the cure was viſited by Maſter *Laffile* and Maſter *Courtin* Doctors, Regents in the facultie of Medicine at *Paris*. The ſaid operation was made in the houſe of *Iohn Gobell* Inkeeper, dwelling at the ſigne of the white horſe in the Greve. I will not here forget to ſay, that the Lady Princeſſe of *Montpenſier*, knowing that he was poore, and in my hands, gave him money to pay for his chamber and diet. He was well cured, God be prayſed, and is returned home to his houſe with a woodden Leg.

Another Hiſtory.

Gangreene happening by an antecedens cauſe.

A Gangreene happened to halfe of the Legge to one named *Nicholas Meſnager* aged threeſcore and ſixteene yeares, dwelling in S. *Honores* ſtreet, at the ſigne of the Basket; which happened to him through an inward cauſe, ſo that wee were conſtrained to cut off his Legge to ſave his life: and it was taken; off by *Anthony Renaud*, maſter Barber Chirurgion of *Paris* the 16. day of *December* 1583. in the preſence of Maſter *Le Fort*, and Maſter *La Noüe* ſworne Chirurgions of *Paris*; and the blood was ſtanched by the Ligature of the veſſells, and hee is at this preſent cured and in health, walking with a woodden Leg.

Another Hiſtory.

A Waterman at the Port of *Neſle*, dwelling neare *Monſieur de Mas*, Poſtmaſter, named *Iohn Bouſſereau*, in whoſe hands a Musket brake aſunder, which broke the bones of his head, and rent and tore the other parts in ſuch ſort that it was needfull and neceſſary to make amputation of the hand two fingers above the wriſt: which was done by *Iames Guillemeau* then Chirurgion in ordinary to the king, who dwelt at that time with me. The operation likewiſe being redily done, and the blood ſtancht by the Ligature of the veſſells without burning irons: hee is at this preſent living.

Operation done *Guillemeau.*

Another Hiſtory.

A Merchant Grocer dwelling in St. *Denis* ſtreet at the ſigne of the great *Tournois* named the Iudge, who fell upon his head, where was made a wound neare the temporall muſcle, where he had an artery opened, from whence iſſued forth blood with great impetuoſity, in ſo much that common remedies would not ſerve the turne; I was called thither, where I found Maſter *Raſſe*, Maſter *Cointeret*, Maſter *Viard*, ſworne Chirurgions of *Paris*, to ſtay the blood; where preſently I tooke a needle and thread, and tyed the arterie, and it bled no more after that, and was quickly cured. Maſter *Rouſſelet* can witneſſe it, not long ſince Deacon of your Facultie, who was in the cure with us.

Operation done by the Author.

Another Hiſtory.

Another operation.

A Sergeant of the Chaſtlet dwelling neare S. *Andrew des Arts*, who had a ſtroake of a ſword upon the throate in the Clackes medow, which cut aſunder the jugular veine externe, as ſoone as he was hurt he put his handkercher upon the wound, and came to looke mee at my houſe, and when hee tooke away his handkercher the blood leaped out with great impetuoſity: I ſuddainly tyed the veine toward the roote; he by this meanes was ſtanched and cured thankes be to God. And if one had followed your manner of ſtanching blood by cauteries, I leave it to be ſuppoſed whether he had beene cured; I thinke hee had beene dead in the hands of the operator. If I would recite all thoſe whoſe veſſells were tyed to ſtay the blood which have beene cured, I ſhould not have ended this long time; ſo that me thinkes there are Hiſtories enough recited to make you beleeve the blood of veines and arteries is ſurely ſtanched without applying any actuall cauteries.

DU BARTUS.

He that doth ſtrive againſt experience,
Daignes not to talke of any learned ſcience.

Booke the 6. Chap. 4 and 5 booke 2. chap. 4. booke 3, ch. 9, ſection 7.

NOw my little Maſter, ſeeing that you reproach me, that I have not written all the operations of Chirurgery in my workes which the Ancients writ of, I ſhould be very ſorry for it: for then indeede might you juſtly call me *Carnifex*. I have left them becauſe they are too cruell, and am willing to follow the modernes, who have moderated ſuch cruelty: which notwithſtanding you have followed ſtep by ſtep, as appeareth by the operations here written, extracted from your booke, which you have drawne here and there from certaine ancient Authors, ſuch as follow: and ſuch as you have never practiſed nor ſeene.

The firſt operation.

In the 2. booke of the chap. of *Hypoſpatiſme*, booke 14, ch. laſt, of the Meth.
In the 4. chap. of the 16. booke of my worke.
Booke 6 chap. 7, Booke 2, chap. 5.

TO inveterate fluxions of the eyes, & Migrimes, *Paulus Ægineta* as alſo *Albucaſis* command to make *Arteriotomie*, ſee here the words of the ſame *Æginete*. You marke the Arteries which are behind the eares, then divide them in cutting to the very bone, and make a great inciſion the breadth of two fingers; which is the will alſo of *Aetius* that the inciſion be made tranverſe, cutting or inciſing the length of two fingers, even till that the Artery be found, as you command to bee done in your booke; but I holding the opinion of *Galen*, who commands to dreſſe the diſeaſed quickly, ſafely and with the leaſt paine that is poſſible, I teach the young Chirurgion the meanes to remedy ſuch evills in opening the Arteries behind the eares, and thoſe of the Temples, with one onely inciſion, as a letting blood, and not to make a great inciſion and cut out worke for a long time.

The ſecond operation.

In the 2, book chap. of *Periſcythiſme*.

TO fluxions which are made a long time upon the eyes, *Paul Æginete* and *Albucaſis* command to make inciſion which they call *Periſcythiſmos* or *Angiologie* of the Greekes; and ſee heere the words of *Paul*, In this operation firſt the head is ſhaved, then taking heede of touching the temporall muſcles, a tranſverſe inciſion muſt bee made, beginning at the left Temple and finiſhing at the right, which you have put in your booke word for word, without changing any thing: which ſheweth openly you are a right wound-maker; as may be ſeene in the Chapter which you call the Crowne cut, which is made halfe round under the Coronall ſuture from one temple to the another even to the bone. Now I doe not teach ſuch a cruell kind of remedy, but inſtruct the operator by reaſon, authority and notable proofe of a ſure and certaine way to remedy ſuch affections without butchering men in this kind.

In the 26. ch. of the 9. book of my workes.

The third.

Book 6. chap. 44. booke 2, chap. 3 booke 3. chap. 22.

IN the cure of the *Empyema*, *Paul Æginete*, *Albucaſis* and *Celſus* commanded to apply ſome 13. others 15. Cauteries to give iſſue to the matter contained in the breaſt, as the ſaid *Celſus* in the aforeſaid place appointeth for Aſthmatick people, which is a thing out of all reaſon (with reſpect to their honour be it ſpoken) that ſince the Chirurgions ſcope is to give iſſue to the matter therein contained, there is no other queſtion than to make apertion, to evacuate the matter in the moſt inferior part, I have ſhewed the young Chirurgion the meanes to doe it ſafely, without tormenting the patients for nothing.

The fourth.

IN Paps that are too great, **Paul Æginet** and **Albucraſis** commands to make a croſſe inciſion, to take out all the fat, and then joyne together the wound by ſtitch: In brieſe, it is to flea a man alive, which I have never practiſed, nor counſell it to bee done by the young Chirurgion.

Guido of Cauliac the 2, treatiſe. Doct. 1. chap. 1. Booke 7. chap 10. booke 6. chap 46, book 2, chap. 47.

The fifth.

ALbucraſis and **Paul Æginet** will cauterize the Liver and the Spleene with hot irons, which the modernes have never practiſed; for indeede reaſon is manifeſtly repugnant thereunto.

In the firſt booke, chap. 29, & 30. alſo in booke 2, chap. 32. Booke 6, chap. 47, and 48.

The Sixth.

IN the *Paracenteſis* which is made in the third kind of Dropſie called *Aſcites*, *Celius Aurelianus* commandeth divers apertions to be made in the belly. *Albucraſis* applies nine actuall cauteries, that is to ſay, foure about the Navell, one upon the Stomacke, one upon the Spleene, one upon the Liver, two behind the backe upon the ſpondills, one of them neare the breaſt, the laſt neare the Stomacke. *Ætius* is likewiſe of the ſame opinion, to open the belly with divers cauteries. **Paul Æginet** commands to apply five actual cauteries to make the ſaid *Paracenteſis*. But abhorring ſuch a kind of burning of which you ſpeake much in your third booke, I ſhew another kind of practiſe, the which is done in making a ſimple inciſion in the ſayd belly, as may be ſeene in my workes, with happy ſucceſſe. I doe not teach yong men in my workes the manner of burning, which the Ancients have called *inſibulare*, that is not in practiſe though *Celſus* writeth of it.

In the 5, book chap. 1, *De internis morbis*. Booke 1. chap. 33. book 3, ſect. 2, chap. 89. booke the 6, chap. 50. In the 3. book 12. chap. 6, 7.

The Seaventh.

IN the Sciaticke proceeding from an internall cauſe, and becauſe the viſcous humors diſplace the bones, **Paul** commands to burne or cauterize the ſaid joynt to the bone: *Diaſcorides* commands the ſame, Which I doe not finde expedient, taking indication from the ſubjacent parts: for there where one would burne, tis in the place of the foure twin muſcles, under which paſſeth the great Nerve deſcending from the holy bone; which being burnt, I leave it to your cenſure what might happen, as **Galen** remarketh ſpeaking of the *Vſtion* which muſt be made in the ſhoulder called *humerus*.

In the 7, book chap. 25. book 6, chap. 6 book 2, chap, 72, upon the ſentence 49, of the 1 ſection of the book of Arts.

The Eighth.

IN the outward Laxation of the Spondills, **Hippocrates** commands to bind the man right upon a Ladder, the Armes and Legges tyed and bound: then afterwards having raiſed the Ladder to the top of a tower, or the ridge of an houſe, with a great rope in a pully, then to let the patient fall plumbe downe upon the hard pavement; which **Hippocrates** ſayes was done in his time. But I doe not ſhew any ſuch way of giving the ſtrapado to men, but I ſhew the Chirurgion in my workes, the way to reduce them ſurely, and without great paine. Moreover I ſhould be ſorry to follow the ſaying of the ſayd **Hippocrates**, in the third booke *De morbis*, who commands in the diſeaſe called *Volvulus* to cauſe the belly to bee blowne with a paire of Bellowes, putting the noſell of them into the *inteſtinum rectum*, and then blow there till

Sentence the 22, and 23, of the 3 ſection of the booke of the joynts. chap. 16. of the 15. booke.

till the belly be much ſtretcht, afterwards to give an emollient gliſter, and to ſtop the fundament with a ſponge. Such practiſe as this is not made now a dayes, therefore wonder not if I have not ſpoken of it. And you not being contented to patch together the operations of the above ſaid Authors, you have alſo taken divers in my workes, as every man may know: which ſheweth manifeſtly that there is nothing of your owne in your Chirurgions Guide. I leave out divers other unprofitable operations which you quote in your booke, without knowing what beaſts they are, in never having ſeene them practiſed; but becauſe you have found them written in the bookes of the Ancients, you have put them into your booke.

Moreover you ſay that you will teach me my leſſon in the operations of Chirurgery, which I thinke you cannot doe: becauſe I have not onely learned them in my Study, and by the hearing for many yeares the leſſons of Doctors of Phyſicke: but as I have ſayd before in my Epiſtle to the Reader, I was reſident the ſpace of three yeares in the Hoſpitall of *Paris*, where I had the meanes to ſee and learne divers workes of Chirurgery, upon divers diſeaſes, together with the Anatomy, upon a great number of dead bodies, as oftentimes I have ſufficiently made triall publickly in the Phyſitions ſchoole at *Paris*, and my good lucke hath made mee ſeene much more. For being called to the ſervice of the Kings of France (foure of which I have ſerved) I have beene in company at Battells, Skirmiſhes, aſſaults, and beſeiging of Citties and Fortreſſes; as alſo I have beene ſhut up in Citties with thoſe that have beene beſeiged, having charge to dreſſe thoſe that were hurt. Alſo I have dwelt many yeares in this great and famous City of *Paris*, where, thankes bee to God, I have lived in very good reputation amongſt all men, and have not beene eſteemed the leaſt in rancke of men of my profeſſion, ſeeing there was not any cure, were it never ſo difficult and great, where my hand and my counſell have not beene required, as I make it appeare in this my worke. Now dare you (theſe things being underſtood) ſay you will teach mee to performe the workes of Chirurgery, ſince you never went further than your ſtudy? The operations of the ſame are foure in generall (as we have declared heretofore) where you make but three, that is to ſay, joyne that which is ſeparated, ſeparate that which was conjoyned, and to take away that which is ſuperfluous, and the fourth which I make, is as much neceſſary as induſtrious invention, to adde to Nature that which is wanting, as I have ſhewed heere above. Alſo it is your will that the Chirurgion make but the three operations above ſayd without medling to ordaine a ſimple Cataplaſme, ſaying it is that which comes to your part belonging to the Phyſition: And that the Ancients (in the diſcourſe which you have made to the Reader) have divided the practiſe of Phyſick into three kinds, that is to ſay, Diet, Medicine, and Chirurgery. But I would willingly demand of you, who hath made the partition, and where any thing ſhould be done, who are thoſe which are content with their part, without any enterprize upon the other? For *Hippocrates*, *Galen*, *Ætius*, *Avicen*, in briefe, all the Phiſitions, as well Greekes and Latins as Arabians, have never ſo treated of the one, that they have not treated of the other, for the great affinitie and tye that there is betweene them two, and it ſhould bee very difficult to doe otherwiſe. Now when you will vilifie Chirurgery ſo much, you ſpeake againſt your ſelfe, for in your Epiſtle which you have dedicated to Monſieur of *Martignes*, you ſay, that Chirurgery is the moſt noble part of Phyſicke, as well by reaſon of the originall; antiquity, neceſſity, as certainty in her actions; for ſhee workes *Luce aperta*, as learnedly writeth *Cellus* in the beginning of his ſeaventh booke; therefore it is to be beleeved you never went out of your ſtudy, but to teach the *Theorick* (if you have beene able to doe it.)

A faire ſimilitude.

The operations of Chirurgery are learn't by the eye, & by the touch. I will ſay that you much reſemble a young Lad of Low *Britany* of plump buttocks, where was ſtuffe ſufficient; who demanded leave of his father to come to *Paris*, to take *France*; being arrived the Organiſt of our Ladys Church, met with him at the Pallace gate, who took him to blow the Organs, where hee was remaining three yeeres: hee ſaw hee could ſomewhat ſpeake *French*, he returnes to his father, and told him that he ſpake good *French*, and moreover he knew well, to play on the Organs: his father received him very joyfully, for that hee was ſo wiſe and learned in ſo ſhort a time. Hee went to the Organiſt of their great Church, and prayed him to permit his ſonne to play on the Organs, to the end he might know whether his ſonne was become ſo skilfull a maſter, as he ſayd he was; which the Organiſt agreed to very willingly. Being entred to the Organs, he caſt himſelfe with a full leape to the bellowes, the maſter Organiſt bid him play, and that he would blow; then this good maſter anſweares, Let him play himſelfe on the Organs if he would for him, hee could doe nothing but play on the bellowes. I thinke alſo my little maſter, that you know nothing elſe, but to prattle in a chaire; but I will play upon the keyes, and make the Organs ſound (that is to ſay) I will doe the operations of Chirurgery, that which you cannot in any wiſe doe, becauſe you have not gone from your ſtudy or the ſchooles, as I have ſayd before. But alſo, as I have ſayd already in the Epiſtle to the Reader, that the labourer doth little profit by talking of the ſeaſons, diſcourſe of the manner of tilling the earth, to ſhew what ſeedes are proper to each ſoyle; all which is nothing if he put not his hand to the Plough, and couple the Oxen together. So likewiſe is it no great matter if you doe not know the *Practicke*, for a man may execute Chirurgery well, although he have no tongue at all. As *Cornelius Celſus* hath very well remarked in his firſt booke when he ſaith, *Morbos non eloquentia, ſed remedijs curari: quæ ſi quis elinguis, uſu diſcretus benenorit, hunc aliquanto majorem medicum futurum, quàm ſi ſine uſu linguam ſuam excoluerit*; that is to ſay; Diſeaſes are not to bee cured by eloquence, but by remedies well and duely applyed, which if any wiſe and diſcreete man though he have no tongue know well the uſe thereof, this man in time ſhall become the greater Phyſition, than if without practiſe his tongue were dipt with oratory; the which you your ſelfe confeſſe in your ſayd booke by a Tetraſticke which is thus:

To talke's not all in Chirurgions Art,
But working with the hands
Aptly to dreſſe each greeved part,
And guide, fire, knife, and bands.

Ariſtotle in the firſt booke of his Metaphyſicks the firſt chapter ſaith, Experience is almoſt like unto ſcience, and by the ſame, Art and ſcience have beene invented. And indeed we ſee theſe which are experimented, attaine ſooner to that which they intend, than thoſe which have reaſon and not experience, becauſe that the ſayd experience is a knowledge of ſingular and particular things, and ſcience on the contrary is a knowledge of things univerſall. Now that which is particular is more healeable than that which is univerſall, therefore thoſe which have experience are more wiſe and more eſteemed, than thoſe which want it, by reaſon they know what they doe. Moreover I ſay, that ſcience without experience, bringeth no great aſſurance.

Alciat a Doctor of *Milan*, boaſted one day of himſelfe, that his glory was greater and more famous than that of Counſellors, *Preſidents*, maſters of Requeſt: becauſe that it was by his ſcience, and his inſtructions that they became ſuch: but he was anſweared by a Counſellor, that he was like unto a whetſtone, which made the knife ſharpe and ready to cut, not being able ſo to doe it ſelfe, and alledged the verſes of *Horace* that:

Fungebatur vice cotis, acutum
Reddere quæ ferrum valet, exors ipſa ſecandi.

See you now (my little maſter) my anſwers to your calumniations, and pray you, if you beare a good minde (to the publicke good) to review and correct your booke, as ſoone as you can, and not to hold young Chirurgion in this errour by the reading of the ſame, where you teach them to uſe hot irons after the amputation of members, to ſtay a fluxe of blood, ſeeing there is another meanes, and not ſo cruell and more ſure and eaſie. Moreover if to day after an aſſault of a Citty, where diverſe Souldiers have had armes and legges broken, and ſhot off by Cannon Bullets, Cutlas or other inſtruments of warre; to ſtay the fluxe of blood, if you ſhould uſe hot irons, it would be needfull to have a forge, and much coales to heate them: and alſo the ſouldiers would hold you in ſuch horror for this cruelty, that they would kill you like a Calfe, even as in times paſt they did to one of the chiefeſt Chirurgions of *Rome*, which may be found written before in the third chapter of the Introduction of Chirurgery, the 1 booke. Now leaſt the Sectators of your writings ſhould fall into ſuch inconveniencie, I pray them to follow the methode aforeſayd, the which I have ſhewed to be true and certaine, and approved by authority, reaſon and experience.

The Voyage of Thurin, 1536.

MOreover, I will heere ſhew to the readers the places where I have had meanes to learne the Art of Chirurgery, for the better inſtructing of the young Chirurgion: and firſt in the yeere 1536, the great King *Francis* ſent a great Army to *Thurin*, to recover the Cittyes and Caſtles, which the Marqueſſe of *Guaſt*, Lievtenant generall of the Emperor had taken: where the high Conſtable of *France* the great maſter, was Lievtenant generall of the Army, and Monſieur *de Montian* Colonel generall of the foote, of which I was then Chirurgion. A great part of the Army arrived in the Country of *Suze*; we found the enemy which ſtopt the paſſage, and had made certaine Forts, and trenches, inſomuch that to hunt them out and make them leave the place, we were forced to fight, where there were divers hurt and ſlaine, as well of the one ſide as of the other: but the enemies were conſtrayned to retire, and get into the Caſtle, which was cauſed partly by one Captaine *Ratt*, who climed with divers of the ſouldiers of his company upon a little Mountaine; there where he ſhot directly upon the enemies, hee received a ſhot upon the anckle of his right foote, wherewith preſently he fell to the ground; and ſayd then, Now is the *Rat* taken. I dreſſed him, and God healed him. We entred the throng in the Citty, and paſſed over the dead bodyes, and ſome which were not yet dead, we heard them cry under our horſes feete, which made my heart relent to heare them. And truely I repented to have forſaken *Paris* to ſee ſo pittifull a ſpectacle. Being in the Citty, I entred into a ſtable thinking to lodge my owne, and my mans horſe, where I found foure dead ſouldiers, and three which were leaning againſt the wall, their faces wholly disfigured, and neither ſaw nor heard, nor ſpoake; and their cloathes did yet flame with the gunpowder which had burnt them. Beholding them with pitty, there happened to come an old ſouldier, who asked me if there were any poſſible meanes to cure them, I told him no: he preſently approached to them, and gently cut their throates without choler. Seeing this great cruelty, I told him he was a wicked man, he anſwered me that he prayed to God, that whenſoever he ſhould be in ſuch a caſe, that he might finde ſome one that would doe as much to him, to the end he might not miſerably languiſh. And to returne to our former diſcourſe, the enemie was ſõmoned to render, which they ſoon did, & went out, their lives onely ſaved, with a white ſtaffe in their hands; the greateſt part whereof went and got to the Caſtle of *Villane*, where there was about 200. Spaniards; Monſieur the Conſtable would not leave them behind, to the end that the way might be made free. This Caſtle is ſeated upon a little mountaine, which gave great aſſurance to them within, that one could not plant the Ordinance to beate upon it, and were ſommoned to render, or that they ſhould be cut in peeces; which they flatly refuſed, making anſwere that they were as good and faithfull ſervants to the Emperor, as Monſieur the Conſtable could bee to the King his maſter. Their anſwere heard, they made by force of arme, two great Cannons to be mounted in the night with cords and ropes, by the Swiſſers and Lanſquenets; when as the ill lucke would have it, the two Cannons being ſeated, a Gunner by great negligence ſet on fire a great bagge of Gunpowder; wherewith he was burned together with ten or twelve ſouldiers; and moreover the flame of the powder was a cauſe of diſcovering the Artillery, which made them that all night, they of the Caſtle did nothing but

The retiring of the enemies.

Hiſtory.

Brave anſwere of the Souldiers.

ſhoot

ſhoote at that place where they diſcovered the two peeces of Ordinance, wherewith they kild and hurt a great number of our people.

The next day early in the morning a Battery was made, which in a few houres made a breach, which being made they demanded to parly with us; but twas too late for them; For in the meane time our French foote, ſeeing them amazed, mounted to the breach, and cut them all in peeces, except a faire young luſty mayd of *Piedmount*, which a great Lord would have kept and preſerved for him to keepe him company in the night, for feare of the greedy wolfe. The Captaine and Enſigne were taken alive, but ſoone after were hanged upon the gate of the Citty, to the end they might give example and feare to the Imperiall ſouldiers not to bee ſo raſh and fooliſh, to be willing to hold ſuch places againſt ſo great a Army. Now all the ſayd ſouldiers of the Caſtle, ſeeing our people comming with a moſt violent fury, did all their endeavour to defend themſelves, they kild and hurt a great company of our ſouldiers, with Pikes, Muskets, and ſtones, where the Chirurgions had good ſtore of worke cut out. Now at that time I was a freſh water Souldier, I had not yet ſeene wounds made by gun-ſhot at the firſt dreſſing. It is true, I had read in *Iohn de Vigo*, in the firſt booke of wounds in generall, the eighth chapter, that wounds made by weapons of fire did participate of Venenoſity, by reaſon of the pouder, and for their cure commands to cauterize them with oyle of Elders ſcalding hot, in which ſhould be mingled a little Treackle; and not to faile, before I would apply of the ſayd oyle, knowing that ſuch a thing might bring to the Patient great paine, I was willing to know firſt, before I applyed it, how the other Chirurgions did for the firſt dreſſing, which was to apply the ſayd oyle the hotteſt that was poſſible into the wounds, with tents and ſetons; inſomuch that I tooke courage to doe as they did. At laſt I wanted oyle, and was conſtrained in ſteed thereof, to apply a digeſtive of yolkes of egges, oyle of Roſes, and Turpentine. In the night I could not ſleepe in quiet, fearing ſome default in not cauterizing, that I ſhould finde thoſe to whom I had not uſed the burning oyle dead impoyſoned; which made me riſe very early to viſit them, where beyond my expectation I found thoſe to whom I had applyed my digeſtive medicine, to feele little paine, and their wounds without inflammation or tumor, having reſted reaſonable well in the night: the other to whom was uſed the ſayd burning oyle, I found them feveriſh, with great paine and tumour about the edges of their wounds. And then I reſolved with my ſelfe never ſo cruelly, to burne poore men wounded with gunſhot. Being at *Thurin* I found a Chirurgion, who had the fame above all others, for the curing of wounds of Gunſhot, into whoſe favour I found meanes to inſinuate my ſelfe, to have the receipt of his balme, as he called it wherewith he dreſſed wounds of that kind, and hee held me off the ſpace of two yeeres, before I could poſſible draw the receipt from him. In the end by gifts and preſents he gave it me, which was this, to boyle young whelpes new pupped, in oyle of Lillies, prepared earth wormes, with Turpentine of *Venice*. Then was I joyfull and my heart made glad, that I had underſtood his remedy, which was like to that which I had obtained by great chance. See then how I have learned to dreſſe wounds made with gunſhot, not by bookes. My Lord Marſhall of *Montian* remained Lievtenant generall for the King in *Piedmont*, having ten or twelve thouſand men in garriſon through the Cittyes and Caſtles, who often combated with ſwords and other weapons, as alſo with muskets; and if there were foure hurt, I had alwayes three of them, and if there were queſtion of cutting off an arme or a legge, or to trepan, or to reduce a fracture or diſlocation, I brought it well to paſſe. The ſayd Lord Marſhall ſent me one while this way, another while that way, for to dreſſe the appointed Souldiers which were beaten aſwell in other Citties as that of *Thurin*, inſomuch that I was alwayes in the Countrey one way or other. Monſieur the Marſhall ſent for a Phyſition to *Milan*, who had no leſſe reputation in the medicinall Art (than the deceaſed Monſieur *le Grand*) to take him in hand for an hepaticall flux, whereof at laſt he dyed. This Phyſitian was a certaine while at *Thurin* to deale with him, and was often called to viſite the hurt people, where he alwayes found me, and I conſulted with him, and ſome other Chirurgions, and when wee had reſolved to doe any ſerious worke of Chirurgery, twas *Ambroſe Pare* that put his hand thereto,

Exemplary puniſhment.

Counſell of Devigo.

Experience of a bold man happy ſucceſſe

Receipt of an excellent balme for wounds with Gunſhot.

Witneſſe of the dexterity of the Author.

The death of Marſhall *Montian.*

where I did it promptly and with dexterity, and with a great aſſurance, in ſo much that the ſayd Phyſition admired me, to ſee me ſo ready in the operation of Chirurgery, ſeeing the ſmall age which I had, One day diſcourſing with the ſayd Lord Marſhall, he ſayd to him, *Signor, tu hai un Chirurgico giovane di anni, ma egli é vecchio di ſapere e di eſperientia. Guarda lo bene, perche egli ti fara ſervicio & bonore.* That is to ſay, Thou haſt a young Chirurgion of age, but he is old in knowledg and experience, preſerve him well; for he will doe thee ſervice, and honour. But the old man knew not that I had dwelt three yeares in the Hoſpitall of *Paris*, there to dreſſe the diſeaſed. In the end Monſieur *Marſhall* dyed with his hepaticall fluxe. Being dead, the King ſent Monſieur the Marſhall of *Annebaut* to be in his place, who did me this honour to pray me to dwell with him, and that he would uſe me as well or better, than Monſieur the Marſhall *Mountian*; which I would not doe for the greefe I had for the loſſe of my maſter who loved me intimately, and I him in the like manner; and ſo I came backe to *Paris*.

The Voyage of Marolle *and of low* Brritany, 1543.

The Engliſh retire.

Dances of the Countrey Wenches.

Wraſtlers; little *Brittan* a good wraſtler.

I Went to the Camp of *Marolle*, with the deceaſed Monſieur *de Rohan*, where King *Francis* was in perſon, and I was Chirurgion of the company of the ſayd Monſieur *de Rohan*. Now the King was advertized by Monſieur *de Eſtampes*, governour of *Brittany*, that the *Engliſh* had hoyſte Sayle to land in Low *Brittany*, and prayed him that he would ſend Monſieur *de Rohan*, and Monſieur *de Laval* for ſuccour, becauſe they were the Lords of that Countrey, and for their ſakes thoſe of that Countrey would beate backe the enemy and keepe them from landing. Having received this advertiſement, his Majeſty diſpatched to ſend the ſayd Lords for the releefe of their Countrey, and to each was given as much power as to the Governour; in ſo much that they were all three the Kings Lievetenants. They tooke willingly this charge upon them, and ſpeedily went away in Poſte, and lead me with them to *Landreneau*, there where we found every one in armes, the Alarum bells ſounding on every ſide, yea five or ſixe leagues about the *Harbors*, that is to ſay, *Breſt*, *Conquet*, *Crozon*, *Le Fou Doulac*, *Laudanec*, each of them well furniſht with Artillery, as Cannons, Demy-cannons, Culverins, Sakers, Serpentines, Falcons, Harque buzes, in breefe there was nothing wanting in Artillery, or ſouldiers aſwell *Brittanes* as *French*, to hinder that the Engliſh made no landing, as they had reſolved at their parting from *England*. The enemies Army came unto the very mouth of the Cannon, and when we perceived them that they would land, they were ſaluted with Cannon ſhot, and we diſovered our men of warre, together with our Artillery: they fled to Sea againe, where I was glad to ſee their veſſells hoiſe ſaile againe, which was in a great number and in good order, and ſeemed like a Foreſt which marched upon the Sea. I ſaw a thing alſo whereat I marveiled much, which was that the bullets of great peeces made great rebounds, and grazed upon the water as upon the ground. Now to make the matter ſhort, the Engliſh did us no harme, and returned whole and ſound into England, and left us in peace. We ſtayd in that Countrey in garriſon, till we were aſſured that their army was diſperſed. In the meane time our horſemen exerciſed their feates of activity, as to run at the ring, fight in duell, and others, ſo that there was ſtill ſomething to imploy me withall. Monſieur *de Eſtampes*, to make ſport and pleaſure to the ſayd Monſieur *de Rohan*, and *Laval*, and other gentlemen, cauſed diverſe Countrey wenches, to come to the feaſts, to ſing ſongs in the Low *Brittan* tongue, where their harmony was like the croaking of Frogges, while they are in love. Moreover made them dance the *Brittany Triory*, without mooving feete or buttockes, hee made them heare and ſee much good. Otherwhiles they cauſed the Wraſtlers of the Cittyes, and Townes, to come where there was a Prize for the beſt, and the ſport was ſeldome ended, but that one or other had a legge or an arme broken, or the ſhoulder or hippe diſplaced: there was a little man of Low *Britany* of a ſquare body and well ſet, who held a long time the credit of the field, and by his skill, and ſtrength, threw five or ſixe to the ground; there came to him a great ſchoolemaſter, who was ſayd to be one of the beſt wraſtlers of all *Brittany*: he entred into the liſts, having taken off his long jacket, in hoſe and doublet, and being neere the little man, he ſeemed as if he had beene tyed to his girdle. Notwithſtanding when each of them tooke hold of the collar, they were a long time without doing any thing, and they thought they would remaine equall in force and skill: but the little man caſt himſelfe with an ambling leape under this great Pedant, and tooke him on his ſhoulder, and caſt him on his Kidneyes ſpread abroad like a frogge, and then all the company laught at the skill and ſtrength of this little fellow. This great *Dativo* had a great ſpight, for being caſt by ſo little a man: he roſe againe in choler, and would have his revenge. They tooke hold againe of each others collar, and were againe a good while at their hold without falling to ground: in the end this great man let himſelfe fall upon the little, and in falling put his elbow upon the pitch of his ſtomacke, and burſt his heart, and kild him ſtarke dead. And knowing he had given him his deathes blow, tooke againe his long caſſocke, and went away with his tayle betweene his legges and hid himſelfe, ſeeing that the little man came not againe to himſelfe, either for Wine, Vinegar or any other thing that was preſented unto him; I, drew neere to him, and felt his pulſe which did not beate at all, then I ſayd he was dead; then the *Brittanes* who aſſiſted the wraſtling ſayd aloud in their jabbering, that is not in the ſport. And ſome ſayd that the ſayd Pedagoge was accuſtomed to doe ſo, and that but a yeere paſſed he had done the like in a wraſtling. I would needes open the body to know the cauſe of this ſodaine death, where I found much blood in the *Thorax* and in the inferiour belly, and I ſtrived to finde out any apertion in the place, from whence might iſſue ſo great a quantity of blood, which I could not doe for all the dilligence I could make. Now I beleeve it was *per Diapedeſin* or *Anaſtomoſin*, that is to ſay by, the apertion of the mouthes of the veſſells, or by their poroſities; the poore little wraſtler was buryed. I tooke leave of *Meſsieurs de Rohan, de Laval*, and *Eſtamps*. Monſieur *de Rohan*, gave mee a preſent of fifty double duckets, and an ambling horſe, and Monſieur *de Laval* another for my man, and Monſieur *de Eſtamps*, a Diamond of thirty Crownes, and ſo I returned to my houſe at *Paris*.

The little Brittan kild.

The body opened by the Author.

The Voyage of Parpignan, 1543.

A Little while after Monſieur *de Rohan* tooke me with him poſte, to the campe of *Parpignan*; being there, the enemy made a Sally forth, and came and incloſed three peeces of our Artillery, where they were beaten back, to the gates of the Citty: which was not done without hurting and killing many, and amongſt the reſt *de Briſſac*, (who was then chiefe maſter of the Artillery) received a musket ſhot upon the ſhoulder: returning to his Tent, all the others that were hurt followed him, hoping to be dreſt by the Chirurgions, that ought to dreſſe them. Being come to his Tent and layd on his bed, the bullet was ſearched for by three or foure the moſt expert Chirurgions of the Army, who could not finde it, but ſayd it was entred into his body.

In the end hee called for me, to ſee if I were more skilfull than them, becauſe he had knowne me before in *Piedmount*: by and by I made him riſe from his bed, and prayed him to put his body into that poſture as it was then when hee received his hurt; which he did taking a javelin betweene his hands as he held the Pike in the skirmiſh. I put my hand about the wound, and found the bullet in the fleſh, making a little tumor under the *Omoplate*: having found it I ſhewed them the place where it was, and it was taken out by Maſter *Nicholas Lavernaut* Chirurgion to Monſieur the *Dolphin*, who was the Kings Lievtenant in that army, yet notwithſtanding the honour remained to me for finding of it.

Addreſſe of the Author.

I ſaw one thing of great remark, which is this: that a ſouldier in my preſence gave to one of his fellowes a ſtroake with an Halbard upon the head, penetrating even to the left ventricle of the braine, without falling to the ground. Hee that

Hiſtory.

ſtrooke him ſaid, he had heard that he had cheated at Dice, and that he had drawne a great ſumme of money, and that it was his cuſtome to cheate; I was called to dreſſe him, which I did as it were for the laſt, knowing well that he would quickly die: having dreſt him he returned all alone to his lodging, which was at leaſt two hundred paces diſtant: I bid one of his companions ſend for a Prieſt to diſpoſe of the affaires of his ſoule; he helpt him to one who ſtayd with him to the laſt gaſpe. The next day the patient ſent for mee by his ſhee friend in a boyes apparell to come to dreſſe him, which I would not doe, fearing hee ſhould die under my hands; and to put it off, I ſayd I muſt not take off the dreſſing till the third day, by reaſon hee would die though hee were never touched. The third day hee came ſtaggering, and found me in my Tent accompanied with his wench, and prayed mee moſt affectionately to dreſſe him: And ſhewed me a purſe wherein he had an hundred or ſixſcore peeces of Gold, and that he would content me to my deſire; for all that, yet notwithſtanding I left not off to deferre the taking off his dreſſing, fearing leaſt hee ſhould die at the ſame inſtant. Certaine Gentlemen deſired me to goe dreſſe him, which I did at their requeſt, but in dreſſing him he died under my hands in a Convulſion. Now this Prieſt accompanied him untill death, who ſeazed upon the purſe for feare leaſt another ſhould take it, ſaying, hee would ſay Maſſes for his ſoule. Moreover hee furniſht himſelfe with his cloathes, and with all the reſt of his things. I have recited this Hiſtory as a monſtrous thing, that the Souldier fell not to ground when he had received this great ſtroake, and was in good ſenſes even till death. Soone after, the Campe was broken for divers cauſes; the one becauſe we were advertized that foure companies of *Spaniards* were entred into *Parpignam*; the other, that the Plague begun much in our Campe, and it was told us by the people of the countrey that ſhortly there would bee a great overflowing of the Sea, which might drowne us all; and the preſage which they had, was a very great winde from Sea, which aroſe in ſuch manner that there remained not one Tent which was not broken and overthrowne, for all the ſtrength and dilligence that could be given; and the Kitchins being all uncovered, the winde raiſed ſo the duſt and ſand which ſalted and poudred our meate, in ſuch ſort that wee could not eate it, ſo that wee were conſtrained to boile it in pots and other veſſells well covered.

Now we did not uncampe our ſelves in ſo good time, but that there were many Carts and Carters Mules, and Mule drivers drowned in the Sea, with great loſſe of baggage. The Campe broken, I returned to *Paris.*

The voyage to Landreſy. 1544.

KIng *Francis* raiſed a great Army to victuall *Landreſy*: on the other ſide the Emperour had no leſſe people, yea much more; that is to ſay, eighteene thouſand *Germans*, tenne thouſand *Spaniards*, ſixe thouſand *Wallons*, tenne thouſand *Engliſh*, and a matter of thirteene or fouretcene thouſand Horſe. I ſaw the two Armies neare one another, within Canon ſhot, and it was thought they would never part without giving battaile. There were ſome certaine fooliſh Gentlemen who would approach the enemies Campe; certaine ſhot was made at them, and ſome dyed at the place, others had their Legges or Armes carried away. The King having done what hee deſired, which was to revictuall *Landreſy*, retired himſelfe with his Army to *Guiſe*, which was the day after All Saints, one thouſand five hundred forty foure, and from thence I returned to *Paris.*

The Voyage of Boulogne. 1545.

A Little while after we went to *Boulogne*, where the *Engliſh* ſeeing our Army, left the Forts which they had, that is to ſay, *Moulambert*; the little Paradiſe, *Monplaiſir*, the fort of *Shatillon*, the *Portet*, the Fort *Dardelot*. One day going through the Campe to dreſſe my hurt people, the enemies who were in the Tower of *Order*, ſhot off a peece of Ordinance, thinking to kill two horſemen which ſtayd to talke one with another. It happened that the Bullet paſſed very neare one of them, which threw him to the ground, and t'was thought the ſaid Bullet had toucht him, which it did not at all, but onely the winde of the ſaid Bullet in the midſt of his coate, which went with ſuch a force that all the outward part of the Thigh became blacke and blew, and had much adoe to ſtand. I dreſt him, and made him divers Scarifications to evacuate the contuſed blood, which the winde of the ſaid Bullet had made; and the rebounds that it made on the ground, kild foure ſouldiers which remained dead in the place. I was not farre from this ſtroake, ſo that I felt ſomewhat the mooved aire, without doing mee any harme, than a little feare which made mee ſtoope my head very low, but the Bullet was already paſſed farre beyond mee.

The Souldiers mock't me to be affraid of a Bullet already gone. (My little Maſter) I thinke if you had beene there, that I had not beene affraid alone, and that you would have had your ſhare of it. What ſhall I ſay more? Monſieur the Duke of *Guiſe*, *Francis* of *Lorraine*, was hurt before *Bullogne* with a ſtroake of a Lance, which above the right eye, declining towards the noſe, entred and paſſ'd quite through on the other ſide betweene the *nucha* and the eare, with ſo great a violence, that the head of the Lance with a great part of the wood was broken and remained within, in ſuch ſort that it could not bee drawne out but with great force, yea with Smithes pincers. Notwithſtanding all this violence which was not done without breaking of bones, nerves, and arteries, and other parts; my ſaid Lord, by the helpe of God was cured: the ſaid Lord went alwayes with open face, which was the cauſe that the Lance went through on the other ſide.

The hurt of Monſieur *de Guiſe*.

The voyage of Germany. 1552.

I Went the voyage to *Germany* in the yeare 1552. with Monſieur *De Rohan* Captaine of 50. horſe, where I was Chirurgion of his company, which I have ſaid already. In this voyage Monſieur the high Conſtable of *France* was Generall of the Army: Monſieur *de Chaſtillon*, ſince Admirall, was chiefe Colonell of the foote, having foure Regiments of Lanſquenets, under the conduct of theſe Captaines, *Recrod* and *Ringrave*, having each of them two Regiments, each Regiment was of tenne Enſignes, and each Enſigne of five hundred men. And beſides theſe, was Captaine *Chartel*, who conducted the troopes that the Proteſtant Princes had ſent to the King. This was a very faire company on foote, accompanied with fifteene hundred Horſe, with the following of each one two Archers, which might make foure thouſand five hundred Horſe, beſides two thouſand Light horſe, and as many Muſkettieres on horſebacke, of whom Monſieur *de Aumalle* was Generall, beſides the great number of Nobility who came for their pleaſure. Moreover, the King was accompanied with two hundred Gentlemen of his houſe, & likewiſe with divers Princes; there was alſo for his troope that ſerved him, the *French*, *Scottiſh*, and *Swiſſers* Guards, amounting to ſixe hundred men on foote, and the companies of Monſieur the *Dolphin*, *Meſſieres de Guiſe*, *de Aumalle*, and of the Marſhall S. *Andrew*, which amounted to foure hundred Lances, which was a mervelous thing to ſee ſuch a faire Company; and in this equipage the King entred into *Thou* and *Mets*. I will not omit to tell that it was ordained, that the Companions of *Meſſieres de Rohan*, of the Count of *Sancerr*, of *Iarnac*, which was each of them of fifty horſe, went by the Wings of the Campe; and God knowes we had ſcarcitie of victualls, and I proteſt to God that at three divers times I had thought I ſhould have beene famiſht, and it was not for want of money for I had enough, and we could not have victualls but by force, by reaſon that the *Peſants* withdrew it all into the Citties and Caſtles.

History.

One of the ſervants of a Captaine of the company of Monſieur *de Rohan*, went with others thinking to enter into a Church where the *Peſants* were retired, thinking to finde victualls by force or love: but amongſt the reſt this man was well beaten, and returned with ſeaven wounds, with a ſword in the head; the leaſt of which penetrated the ſecond table of the ſcull, and he had foure other upon the armes, and upon the right ſhoulder, which cut more than one halfe of the blade-bone, or *Omoplate*.

He

Charity of the Author.

He was brought backe to his maſters lodging, who ſeeing of him ſo wounded, and that they were to depart thence the morrow after at the breake of day, and not thinking ever he could be cured, made him a grave, and would have caſt him therein, ſaying that, or elſe the *Peſants* would maſſacre and kill him; I mov'd with pitty told him that he might yet be cured if he were well dreſt: divers Gentlemen of the company prayd him that he would cauſe him to bee brought along with the Baggage, ſeeing I had the willingneſſe to dreſſe him; to which he agreed, and after that I had cloth'd him, he was but put into a Cart upon a bed well covered and well accommodated, which one horſe did draw. I did the office of a Phyſition, Apothecary, Chirurgion, and Cooke; I dreſt him even to the end of his cure, and God cured him, in ſo much that all theſe three Companies admired at this cure. The horſemen of the company of Monſieur *de Rohan*, the firſt muſter that was made, gave me each one, one Crowne, and the Archers halfe a Crowne.

The voyage of Danvilliers. 1552.

AT the returne from the *German* Campe, King *Henry* beſeiged *Danvilliers*, thoſe within would not render. They were well beaten and our pouder failed us, in the meane time they ſhot much at our people. There was a Culverin ſhot paſs'd a traverſe the Tent of Monſieur *de Rohan*, which hit a Gentlemans Leg, which was of his traine; which I was faine to finiſh the cutting off, the which was done without applying hot irons.

Another Hiſtory.

The King ſent for pouder to *Sedan*, which being come they began a greater battery than before, in ſuch ſort that they made a breach. *Meſſiers de Guiſe*, and the high Conſtable being in the Kings Chamber, told him they concluded the next day to make aſſault, & that they were aſſured they ſhould enter into it, & that they ſhould keep it ſecret leſt the enemy were advertized. And all of them promiſed not to ſpeake of it to any one. Now there was a Groome of the Kings chamber who lay under the Kings bed in the Camp to ſleep, underſtood that they reſolved the next day to give an aſſault, he preſently revealed it to a certaine Captaine and told him that for certaine the day following aſſault ſhould be given, & that he had heard it of the King, & praid the ſaid Captaine that he would not ſpeake a word of it to any body, which he promiſed: but his promiſe was not kept, for at the ſame inſtant, he went and declared it to a Captaine, & this Captaine to another Captaine, and from the Captaines to ſome of the Souldiers, ſaying alwayes, ſay nothing. It was ſo well hid that the next day early in the morning there was ſeene the greateſt part of the Souldiers with their round hoſe and their breeches cut at knee for the better mounting at the breach. The King was advertiz'd of the rumor which runne through the Campe, that the aſſault muſt be given, whereof hee much mervailed, ſeeing there was but three of that adviſe, which had promiſed one to another, not to tell it to any one. The King ſent for Monſieur *de Guiſe*, to know if hee had not talked of this aſſault; hee ſwore and affirmed to him he had not told it to any body; and Monſieur the Conſtable ſaid as much; who ſaid to the King he muſt expreſſely know who had declared this ſecret counſell; ſeeing they were but three. Inquiſition was made from Captaine to Captaine, in the end the truth was found; for one ſayd twas ſuch a one told me, another ſayd as much, till at length they came to the firſt, who declared he had learnd it of a Groome of the Kings chamber, named *Guyard*, borne at *Blois*, the ſonne of the deceaſed King *Francis* his Barber. The King ſent for him into his Tent, in the preſence of Monſieur *de Guiſe*, and of Monſieur the Conſtable, to underſtand from him whence he had it, and who told him that this aſſault was to bee given. The King told him that if he did not tell the truth, that he would cauſe him to be hanged; then he declared, he lay downe under his bed thinking to ſleepe, and ſo having heard it, he declared it to a Captaine who was a friend of his, to the end hee might prepare himſelfe with his Souldiers the firſt for the aſſault. After the King knew the truth; he told him, he ſhould never ſerve him againe, and that he deſerved to be hanged, and forbid him ever to come againe to the Court. My Groome of the Chamber went away with this ſad newes, and lay with one of the Kings

What it is to reveale the ſecrets of Princes.

Chirurgions in ordinary, named Maſter *Lewis*, and in the night gave himſelfe ſix wounds with a knife, and cut his throate; yet the ſaid Chirurgion perceived nothing till morning, till hee ſaw the bed bloody, and the dead body by him: hee much mervailed at this ſpectacle upon his waking, and was afraid leaſt they ſhould ſay he was the cauſe of this murther; but was ſoone freed, knowing the cauſe to bee from deſperation, having loſt the good amitie which the King bore to him. The ſaid *Guyard* was buried. And thoſe of *Danvilliers* when they ſaw the breach large enough for them to enter in, and the Souldies prepared for the aſſault, yeelded themſelves to the mercy of the King. The chiefe of them were priſoners, and the Souldiers ſent away without armes. The Campe being broken up I returned to *Paris* with my Gentleman whoſe Leg I had cut off, I dreſt him and God cured him; I ſent him to his houſe merry with a woodden Leg, and was content, ſaying that he ſcaped good cheape, not to have beene miſerably burnt, as you write in your booke, my little Maſter.

The Voyage of Caſtle the Compt. 1552.

The King of *Navarre* prayed the Author to follow him.

A Little while after King *Henry* levied an Army of thirty thouſand men, to goe make ſpoile about *Hedin*. The King of *Navarre* who was then called Monſieur *de Vendoſme*, was chiefe of the Army, and the Kings Lievtenant. Being at S. *Denis* in *France*, ſtaying while the companies paſs'd by, he ſent for me to *Paris* to come ſpeak with him; being there, he prayed me, and his requeſt was a command, that I would follow him this voyage; and I about to make my excuſe told him him my wife was ſicke in her bed, he made me anſwer, that there were Phiſitions at *Paris* for to cure her; and that he as well left his owne, who was as well deſcended as mine; promiſing me that hee would uſe me well, and forthwith gave command that I ſhould be lodged as one of his Traine. Seeing this great affection, which he had to leade me with him, I durſt not to refuſe him. I went and met with him at the Caſtale of *Compt*, within 3. or 4. leagues of *Hedin*, there where there was the Emperors Souldiers in garriſon with a number of *Peſſants* round about: hee cauſed them to be ſummond to render themſelves; and they made anſwer they ſhould never have them but by peeces, and let them doe their worſt, and they would doe their beſt to defend themſelves. They put confidence in their ditches full of water, and in two houres with a great number of Bavins, and certaine empty Caskes, way was made to paſſe over the foote: when they muſt goe to the aſſault and were beaten with five peeces of Cannon, till a breach was made large enough to enter in, where they within received the aſſault very valiantly, and not without killing and hurting a great number of our people with musket ſhot, pikes and ſtones. In the end when they ſaw themſelves conſtrained, they put fire to their pouder and munition, which was the cauſe of burning many of our people, and of theirs likewiſe, and they were all almoſt put to the edge of the ſword. Notwithſtanding ſome of our Souldiers had taken twentie or thirtie, hoping to have ranſome for them. That was knowne, and ordered by the Counſell that it ſhould be proclaimed by the Trumpet through the Campe, that all Souldiers who had any *Spaniards* priſoners were to kill them, upon paine to be hanged and ſtrangled, which was done upon cold blood. From thence we went and burnt diver Villages, whoſe barnes were full of all kind of graine, to my great greefe. Wee went along even to *Tournaham*, where there was a verygreat Tower where the Enemies retired, but there was no man found in it, all was pillaged, and the Tower was made to leape by a Mine, and then with Gunpouder turned topſy turvy. After that, the Campe was broken up, and I returned to *Paris*. I will not yet forget to write that the day after the Caſtle of *Compt* was taken, Monſieur *de Vendoſme* ſent a Gentleman to the King to make report to him of all which had paſs'd, and amongſt other things, told the King that I had greatly done my duty in dreſſing thoſe that were wounded, and that I had ſhewed him eighteene Bullets which I had taken or drawne out of the hurt bodies, and that there were divers more which I could neither finde, nor draw out, and told more good of mee than there was by halfe. Then the King ſaid hee would have mee into his ſervice, and

History of deſperate people.

The taking of Caſtle of *Compt*.

and commanded Monſieur *de Goguier* his chiefe Phyſition to write me downe as entertained one of his Chirurgions in ordinary, and that I ſhould goe meete with him at *Rheimes* within ten or twelve dayes; which I did, where he did me the honour to command me that I would dwell neare him, and that he would doe me good. Then I thankt him moſt humbly for the honour it pleaſed him to doe me, in calling me to his ſervice.

The Voyage of Mets. 1552.

The names of the Princes who were at the ſeige of *Mets.*

THe Emperour having beſeiged *Mets*, and in the hardeſt time of winter, as each one knowes of freſh memory: and that there was in the Citty five or ſixe thouſand men, and amongſt the reſt ſeaven Princes; that is to ſay, Monſieur the Duke of *Guiſe* the Kings Lievtenant, *Meſsieurs d'Anguien, de Conde, de Montpenſier, de La Roch upon Yon*, Monſieur *de Nemours*, and divers other Gentlemen, with a number of old Captaines of warre, who often made ſallies forth upon the enemies, (as wee ſhall ſpeake of hereafter) which was not done without ſlaying many, as well on the one ſide as the other. For the moſt part all our wounded people dyed, and it was thought the medicaments wherewith they were dreſſed were poyſoned; which cauſed Monſieur *de Guiſe* and other Princes to ſend to the King for mee, and that hee would ſend me with Drogues to them, for they beleeved theirs were poyſoned, ſeeing that of their hurt people few eſcaped. I doe not beleeve there was any poyſon, but the great ſtroakes of the Cutlaſſes, Muſket ſhot, and the extremity of cold were the cauſe. The King cauſed one to write to Monſieur the Marſhall of S. *Andrew* which was his Lievtenant at *Verdun*, that hee found ſome meanes to make me enter into *Mets*. The ſaid Lord Marſhall of S. *Andrew* and Monſieur the Marſhall of old *Ville*, got an *Italian* Captaine, who promiſed them to make me enter in, which he did, and for which hee had fifteene hundred Crownes: the King having heard of the promiſe which the *Italian* Captaine had made, ſent for mee and commanded me to take of his Apothecary named *Daigue* ſuch, and as many Drogues as I ſhould thinke fit for the hurt who were beſeiged, which I did, as much as a poſthorſe could carry. The King gave me charge to ſpeake to Monſieur *de Guiſe* and to the Princes, and Captaines who were at *Mets*. Being arrived at *Verdun*, a few dayes after Monſieur the Marſhall of S. *Andrew*, cauſed horſes to be given to mee, and my man and for the *Italian*, who ſpake very good high *Dutch*, *Spaniſh* and *Walon* with his owne naturall tongue: When we were within eight or tenne Leagues of *Mets*, wee went not but in the night, and being neare the Campe, I ſaw a league and a halfe off bright fires round about the Citty, which ſeemed as if all the earth were on fire, and I thought wee could never paſſe through thoſe fires without being diſcovered, and by conſequent be hanged and ſtrangled, or cut in peeces, or pay a great ranſome. To ſpeake truth, I wiſhed my ſelfe at *Paris*, for the eminent danger which I foreſaw. God guided ſo well our affaires that wee entred into the Citty at midnight with a certaine Token, which the Captaine had with another Captaine of the company of Monſieur *de Guiſe*: which Lord I went to, and found him in bed, who received me with great thankes, being joyfull of my comming. I did my meſſage to him of all that the King had commanded me to ſay to him; I told him I had a little letter to give him, and that the next day I would not faile to deliver it him. That done he commanded mee a good lodging, and that I ſhould be well uſed, and bid mee I ſhould not faile to be the next day upon the Breach, where I ſhould meete with all the Princes, and divers Captaines, which I did; who receaved me with great joy, who did mee the honour to imbrace me, and tell me I was very welcome, adding withall they did not feare to dye if they ſhould chance to be hurt: Monſieur *de La Roch upon Yon* was the firſt that feaſted me, and inquired of me what they ſayd at the Court concerning the Citty of *Mets*; I told him what I thought good. Then preſently he deſired mee to goe ſee one of his Gentlemen, named Monſieur *de Magnane* at this preſent Knight of the Kings order, and Lievtenant of his Majeſties Guard; who had his Leg broken by a Cannon ſhot. I found him in his bed, his Leg bended and crooked, without any

Nota.

Commiſsion of the Author.

dreſſing

History.

dreſſing upon it; becauſe a Gentleman promiſed him cure, having his name, and his girdle, with certaine words. The poore Gentleman wept, and cryed with paine which he felt, not ſleeping either night or day, in foure dayes: then I mock't at this impoſture and falſe promiſe. Preſently I did ſo nimbly reſtore and dreſſe his Legge, that he was without paine and ſlept all night, and ſince (thanks be to God) was cured, and is yet at this preſent living, doing ſervice to the King. The ſaid Lord of the *Roch upon Ton* ſent me a Tunne of wine to my lodging, and bid tell me, when it was dronken hee would ſend mee another. That done, Monſieur *de Guiſe* gave me a liſt of certaine Captaines and Lords, and commanded me to tell them what the King had given me in charge; which I did, which was to doe his commendations and a thankſgivng for the duty they had done, and did in the keeping of the Citty of *Mets*, and that he would acknowledge it. I was more than eight daies in acquitting my charge, becauſe they were many; firſt to the Princes and others, as the Duke of *Horace*, the Count of *Martigues*, and his brother, Monſieur *de Bauge*, the Lords *Montmorancy*, and *d'Anville*, then Marſhall of *France*, Monſieur *de La Chapel*, *Bonnivet Caroug* now Governour of *Rohan*, the *Vidaſme* of *Chartres*, the Count of *Lude*, Monſieur *de Biron* now Marſhall of *France*, Monſieur *de Randan* the *Rochfoucaut*, *Boxdaille d'Etrez*, the yonger, Monſieur *de S. Iohn* in *Dolphiny*, & many others which it would bee too long to recite; and chiefely to divers Captaines who had very well done their duty in defence of their lives, and Citty. I demanded afterwards of Monſieur *de Guiſe*, what it pleaſed I ſhould doe with the Drogues which I had brought, he bid me impart them to the Chirurgions and Apothecaries, and chiefely to the poore hurt Souldiers in the Hoſpitall which were in great number; which I did, and can aſſure you, I could not doe ſo much as goe ſee them, but they ſent for mee to viſit and dreſſe them. All the beſeiged Lords prayed mee carefully to ſollicite above all others Monſieur *de Pienne* who was hurt at the breach by a ſtone raiſed by a Cannon ſhot in the Temple with a fracture, and depreſſion of the bone. They told mee that preſently when hee received the ſtroake, hee fell to the earth as dead, and caſt blood out of his mouth, noſe, and eares with great vomitings, and was fourteene dayes without ſpeaking one word, or having any reaſon; there happened to him alſo ſtartings ſomewhat like Convulſions, and had all his face ſwell'd and livid. Hee was trepan'd on the ſide of the temporll muſcle upon the *Os Coronale*. I dreſt him with other Chirurgions, and God cured him, and is at this day living, God be thanked. The Emperour cauſed battery to be made with forty double Cannons, where they ſpared no pouder night nor day. Preſently when Monſieur *de Guiſe* ſaw the Artillery ſeated to make a breach, hee made the neareſt houſes to be pulled downe to make Ramparts, and the poſts and beames were ranged, end to end, and betweene two clods of earth, beds and packs of wooll, and then other poſts and beames were put againe upon them as before. Now much wood of the houſes of the ſuburbs which had beene put to the ground (for feare leaſt the enemie ſhould be lodged, cloſe covered, and that they ſhould not helpe themſelves with any wood) ſerved well to repaire the breach. Every one was buſied to carry earth to make the Ramparts night and day. *Meſſieres* the Princes, Lords and Captaines, Lievtenants, Enſignes, did all carry the basket, to give example to the Souldiers, and Cittizens to doe the like, which they did, yea both Ladies and Gentlewomen, and thoſe which had not baskets, helpt themſelves with kettles, panniers, ſackes, ſheets, and with what elſe they could to carry earth; in ſo much that the enemy had no ſooner beaten downe the wall, but hee found behind a Rampart more ſtrong. The wall being fallen our Souldiers cryed to thoſe without, the Fox, the Fox, the Fox, and ſpake a thouſand injuries one to another. Monſieur *de Guiſe* commanded upon paine of death that no man ſhould ſpeake to them without, for feare leaſt there ſhould be ſome Traitor who would give them intelligence what was done in the Citty; the command made, they tyed living Cats at the end of their Pikes, and put them upon the Wall and cryed with the Cats miau, miau.

The hurt of Monſieur *de Pienne*, trepand and cured.

Princes carried the Baskets.

Breach.

Truely the Emperialiſts were very much vexed to have beene ſo long making a breach, and at ſo great expence, which was the breach of fourescore ſteps, to enter fifty men in front, where they found a Rampart more ſtrong than the wall; they fell upon the poore Catts, and ſhot at them with their muskets as they uſe to doe at birds. Our people did oftentimes make ſallies by the command of Monſieur *de Guiſe*. The day before there was a great preſſe, to make themſelves enrowled, who muſt make the ſally chiefely of the young Nobility, led by well experimented Captaines. Inſomuch that it was a great favour, to permit them to ſally forth, and runne upon the enemy: and they ſallied forth alwayes the number of one hundred, or ſixeſcore armed men with Cutlaſſes, Muskets, Piſtolls, Pikes, Partiſans and Halberds, which went even to their trenches to awaken them. Where they preſently made an alarum throughout all their Campe, and their Drummes ſounded, plan, plan, ta, ti, ta, ta, ta, ti, ta, tou, touf, touf: likewiſe their Trumpets and Cornets, ſounded, to the ſaddle, to the ſaddle, to the ſaddle, to horſe, to horſe, to horſe, to the ſaddle, to horſe. And all their ſouldiers cry'd Arme, arme, arme, to armes, to armes, to armes, arme, to armes, arme, to armes, like the cry after Wolves, and all divers tongues, according to their nations: and they were ſeene to goe out from their tents, and little lodgings, as thicke as little Bees, when their Hive is diſcovered; to ſuccour their fellowes, who had their throates cut like ſheepe. The horſemen likewiſe came from all parts, a great gallop, patati, patata, patati, patapa, ta, ta, patata, patata, and tarried well that they might not bee in the throng, where ſtroakes were imparted to give and receive. And when our men ſaw they were forced, they returned into the Citty, ſtill fighting, and thoſe who runne after were beaten backe with the Artillery which they had charged with flint ſtones, and foureſquare peeces of iron; and our ſouldiers who were upon the ſayd wall made a volley of ſhot, and ſhowred downe their bullets upon them like haile, to ſend them backe to their lodging, where divers remained in the place of the combate, and alſo our men did not all come with whole skinnes, and there ſtill remained ſome for the Tythe, who were joyfull to dye in the bed of honour. And where there was a horſe hurt he was flayed, and eaten by the Souldiers in ſteed of beefe and bacon, and it was fit I muſt runne, to dreſſe our hurt men. A few dayes after, other ſallyes were made, which did much anger the enemies, becauſe they did not let them ſleepe but little in ſafety. Monſieur *de Guiſe*, made a warlike ſtratagem which was, he ſent a Peſant who was none of the wiſeſt with two paire of Letters toward the King, to whom he gave ten Crownes, and promiſed the King ſhould give him an hundred, provided he gave him the letters. In the one he ſent word that the enemy made no ſigne of retiring himſelfe, and by all force made a great breach which he hop't to defend, yea to the loſing of his life, and of all thoſe that were within, and that the enemy had ſo well placed his Artillery in a certaine place which he named, that with great difficulty was it kept that they had not entred into it, ſeeing it was a place the moſt weake of all the Citty: but he hoped quickely to fill it up againe in ſuch ſort, that they cannot be able to enter. One of theſe letters was ſowed in the lining of his doublet, and he was bid to take heede that he told it not to any man. And there was alſo another given to him: wherein the ſayd Monſieur *de Guiſe* ſent word to the King, that he & all the beſieged did hope well to keepe the Citty, and other matters, which I ceaſe to ſpeake of. They made the Peſant goe forth in the night, and preſently after, he was taken by one that ſtood Sentinell, and carryed to the Duke of *Albe*, to underſtand what was done in the Citty, and they asked him if he had any letters, he ſayd yes, and gave them one; and having ſeene it he was put to his oath, whether he had any other, and he ſwore, not; then they felt and ſearch't him, and found that which was ſowed to his doublet, and the poore meſſenger was hanged.

The ſayd letters were communicated to the Emperor, who cauſed his counſell to be called there, where it was reſolved ſince they could doe nothing at the firſt breach, that preſently the Artillery ſhould be drawne to the place which they thought the moſt weake, where they made great attempts to make another breach, and dig'd and undermined the wall, and endeavoured to take the Tower of Hell, yet they durſt not come to the aſſault. The Duke of *Albe* declared to the Emperor that the ſouldiers dyed dayly, yet, more than the number of two hundred, and that there was but little hope to enter into the Citty, ſeeing the ſeaſon, and the great quantity of ſouldiers that there were. The Emperor demanded what people they were that dyed, and if that they were gentlemen of remarke or quality: anſweare was made, that they were all poore ſouldiers; then ſayd he, it makes no matter if they dye, comparing them to caterpillers and graſhoppers, which eate the buddes of the earth: And if they were of any faſhion, they would not bee in the campe for twelve ſhillings the month, and therefore no great harme if they dyed. Moreover he ſayd he would neuer part from before that Citty, till he had taken it by force, or famine, although he ſhould looſe all his army: by reaſon of the great number of Princes which were therein, with the moſt part of the Nobility of *France*. From whom hee hoped to draw double his expence, and that he would goe once againe to *Paris*, to viſite the Pariſiens, and make himſelfe King of all the kingdome of *France*. Monſieur *de Guiſe* with the Princes, Captaines ,and Souldiers, and generally all the Cittizens of the Citty, having underſtood the intention of the Emperor, which was to extirpate us all, they adviſed of all they had to doe: And ſince it was not permitted to the ſouldiers, nor Cittizens, no nor to the Princes, nor Lords themſelves to eate either freſh fiſh, or Veniſon, as likewiſe ſome Partridges, Woodcockes, Larkes, Plovers ,for feare leaſt they had gathered ſome peſtilentiall ayre which might give us any contagion; but that they ſhould content themſelves with the ammunition fare, that is to ſay, with Biſquite, Beefe, poudered Cowes, Lard, and gammons of Bacon: Likewiſe fiſh, as Greenefiſh, Salmon, Sturgeon, Anchovies, Pilchers and Herrings, alſo Peaſe, Beanes, Riſe, Garlike, Onions, Prunes, Cheeſe, Butter, Oyle, Salt, Pepper, Ginger, Nutmegges, and other Spiceries to put into pyes, cheefely to horſefleſh, which without that would have had a very ill taſte; divers Citizens having gardens in the Citty ſowed therein great Raddiſhes, Turnippes, Carrots, and Leekes, which they kept well and full deare, againſt the extremity of hunger. Now all theſe ammunition victualls were diſtributed by weight, meaſure, and juſtice, according to the quality of the perſon, becauſe we knew not how long the ſeige would laſt. For having underſtood from the mouth of the Emperor, that he would never part from before *Mets*, till he had taken it by force, or famine; the victualls were leſſened, for that which was wont to be diſtributed to three, was now ſhared amongſt foure, and defence made they ſhould not ſell what remained after their dinner, but twas permitted to give it to the wenches that followed the Campe. And roſe alwayes from table with an appetite, for feare they ſhould be ſubject to take Phyſicke. And before we would yeeld our ſelves to the mercy of our enemies; had reſolved to eate our Aſſes, Mules, Horſes, Dogges, Cats, and Ratts, yea our bootes and other skinnes which we could ſoften and frie. All the beſeiged did generally reſolve to defend themſelves with all ſorts of inſtruments of warre, that is to ſay ,to ranke, and charge the Artillery, at the entry of the breach with bullets, ſtones, Cart nayles, barres, and chaines of iron. Alſo all kinds and differences of artificiall fire; as Boettes, Bariquades, Granadoes, Potts, Lances, torches, ſquibbes, burning faggots. Moreover ſcalding water, melted lead, powder of unquenched lime to blind their eyes. Alſo they were reſolved to have made holes through, and through their houſes, there to lodge musketiers, there to batter in the flanke and haſten them to goe, or elſe make them lye for altogether. Alſo there was order given to the women to unpave their ſtreetes, and to caſt them out at their windowes billets, tables, treſlles, formes , and ſtooles, which would have troubled their braines: moreover there was a little further , a ſtrong Court of Guard, fild with carts and palliſadoes, pipes and hogs heads, fild with earth, for barriquadoes to ſerve to interlay with faulcons, faulconets, field peeces, harquibuzes, muskets, and piſtolls and wilde fire, which would have broken legges and thighes, inſomuch that they had beene beaten in head, in flancke, and in tayle; and where they had forced this Court of Guard, there was others at the croſſing of the ſtreets, each diſtant an hundred paces, who have beene as bad companions as the firſt, and would not have beene without making a great many Widdowes, and Orphans. And if fortune would have beene ſo much againſt us, as to have broken our Courts of gard, there was yet ſeaven great Baſtallions ordered in ſquare, and triangle, to combate altogether, each one accompanied with a Prince to give them boldneſſe, and encourage them to fight, even till the laſt gaſpe, and to dye altogether. Moreover it was reſolved, that each one ſhould carry his treaſure, rings, and jewells, and their houſehold ſtuffe of the beſt, to burne them in the great place, and to put them into aſhes rather than the enemy ſhould prevaile and make tropheyes of their ſpoyles; likewiſe there was people appointed to put fire to the munition, and to beate out the heads of the Wine caskes, others to put the fire in each houſe, to burne our enemies and us together: the Citizens had accorded it thus, rather than to ſee the bloody knife upon their throate, and their Wives and Daughters violated, and to be taken by force, by the cruell and inhumane ***Spaniards***. Now we had certaine priſoners which Monſieur ***de Guiſe*** ſent away upon their faith, to whom was ſecretly imparted our laſt reſolution, wil and deſperate mindes; who being arrived in their Campe, I doe not deferre the publiſhing; which bridled the great impetuoſity, and will of the ſouldiers to enter any more into the Citty to cut our throates, and to enrich themſelves of our pillage. The Emperor having underſtood this deliberation of the great warriour, the Duke of *Guiſe*, put water in his wine, and reſtrained his great choller and furie, ſaying, He could not enter into the Citty without making a great ſlaughter, and butchery, and ſpill much blood, aſwell of the defendants, as of the aſſaillants, and that they ſhould be dead together, and in the end could have nothing elſe but a few aſhes, and that afterward it might be ſpoken of that, as of the deſtruction of ***Ieruſalem*** already made by *Titus* and ***Veſpaſian***. The Emperor then having underſtood our laſt reſolution, and ſeeing their little prevailing by their battery, and undermining, and the great plague which was in his whole army, and the indiſpoſition of the time; and the want of victualls and money, and that his ſouldiers forſooke him, and went away in great companies; concluded in the end to retire themſelves accompanied with the Cavallery of his Vantgard, with the greateſt part of his Artillery, and the Battalia; The Marqueſſe of ***Brandeborg*** was the laſt which uncampt, maintained by certaine bands of *Spaniards*, ***Bohemians***, and his ***Germane*** compaines, and there remained one day and a halfe after, to the great greefe of Monſieur *de Guiſe*, who cauſed foure peeces of Artillery to be brought out of the Citty, which he cauſed to be diſcharged at him on one ſide; and the other to haſten them to be gone, which he did full quickely, with all his Troopes. He being a quarter of a league from ***Mets*** was taken with a feare leaſt our Cavallery ſhould fall upon him in the Rere, which cauſed him to put fire to his munition powder, and leave certaine peeces of Artillery and much baggage which hee could not carry becauſe the Vantgard, and the Battalia, and great Cannons had too much broken the way. Our horſemen would by all meanes have gone out of the Citty to have fallen upon their breech. But Monſieur *de Guiſe* would never permit them, but on the contrary we ſhould rather make plaine their way, and make them bridges of gold and ſilver, and let them goe, being like to a good ſhepheard, who will not looſe one of his ſheepe. See now how our wellbeloved Imperialiſts went away from before the Citty of *Mets*, which was the day after *Chriſtmas* day, to the great contentment of the beſeiged, and honour of Princes, Captaines and Souldiers who had endured the travells of this ſeige the ſpace of two monthes. Notwithſtanding they did not all goe, there wanted twenty thouſand who were dead aſwell by Artillery, by the ſword, as alſo by the plague, cold, and hunger, and for ſpight they could not enter into the Citty to cut our throates, and have the pillage: and alſo a great number of their horſes dyed, of which they had eaten a great part in ſteed of Beefe and Bacon. They went where they had beene encamped, where they found divers dead bodyes not yet buried, and the earth all dihged like Saint *Innocents* Churchyard, in the time of the plague. They did likewiſe leave in their lodgings, pavillions and tents, divers ſick people: alſo bullets, armes, Carts, Waggons, & other baggage with a great many of Munition loaves ſpoyled and rotten by the raine and ſnow, yet the ſouldiers had it not but by weight and meaſure; & likewiſe they left great proviſion of wood, of the remainders of the houſes, of the Villages which they had pluckt downe 2 or 3 miles compaſſe, likewiſe divers other houſes of pleaſure belonging to the Cittizens accompanied with faire gardens, graſſe plotts fild with fruite trees, for without that they had beene ſterv'd with cold, and had beene conſtrained to have rais'd the ſeige ſooner. The ſayd Monſieur ***de Guiſe*** cauſed the dead to be buried, and dreſſe their ſicke people, likewiſe the enemies left in the Abby of S. *Arnoul* divers of their hurt ſouldiers which they could not leade with them: the ſayd Monſieur *de Guiſe* ſent them all Victualls enough and commanded me and other Chirurgions to goe dreſſe them and give them medicines; which we willingly did, and thinke they would not have done the like toward others (becauſe the *Spaniard* is moſt cruell, perfidious and inhumane, & therefore enimy to all nations) which is proved by *Lopez* a *Spaniard* & *Benzo* of *Milan* & others who have written the hiſtory of *America*, & the Weſt *Indies*, who have beene conſtrayned to confeſſe, that the cruelty, avarice, blaſphemy, and wickedneſſe of the *Spaniards*, have altogether alienated the poore *Indians*, from the religion which the ſayd *Spaniards* are ſayd to hold. And all write they are leſſe worth than the Idolatrous *Indians*, by the cruell uſage done to the ſayd *Indians*.

And a few dayes after we ſent a Trompet to *Thionville* toward the enemy, that they ſhould ſend backe for their wounded men in ſafety, which they did with Carts and Waggons, but not enough. Monſieur *de Guiſe*, cauſed them to have Carts and Carters, to helpe to carry them to the ſayd *Thionville*. Our ſayd Carters being returned backe, brought us word that the way was paved with dead bodyes, and that they never lead backe the halfe, for they dyed in their Carts, and the *Spaniards* ſeeing them at the point of death, before they had caſt out their laſt gaſpe, caſt them out of their Carts, and buryed them in the mudde, and mire, ſaying they had no order to bring backe the dead. Moreover our ſayd Carters ſayd, they met by the way divers Carts loaden with baggage ſticking in the mire, which they durſt not ſend for backe, for feare leaſt thoſe of *Mets* ſhould fall upon them. I will againe returne to the cauſe of their mortality, which was principally through honger, plague, and cold; for the ſnow was two foote thicke upon the earth, and they were lodged in the caves of the earth, onely covered with a little ſtraw. Notwithſtanding each ſouldier had his field bed, and a covering ſtrewed with glittering ſtarres, more bright than fine gold, and every day had white ſheetes, and lodg'd at the ſigne of the Moone, and made good cheere when they had it, and payd their hoſte ſo well over night, that in the morning they went away quitte, ſhaking their eares, and they needed no combe, to take away the doune out of their haires, either of head or beard, and found alwayes a white table cloath, loſing good meales for want of Victualls. Alſo the greateſt part of them had neither bootes, nor buskinnes, ſlippers, hoſe, or ſhooes, and divers had rather have none than have them, becauſe they were alwayes in mudde, halfe way of the legge; and becauſe they went bare leg'd, we called them the Emperors Apoſtles. After the Campe was wholly broaken, I diſtributed my patients into the hands of the Chirurgions of the Citty, to finiſh their cure: then I tooke leave of Monſieur *de Guiſe*, and came backe toward the King, who received me with a loving countenance, and demanded of me how I did enter into the Citty of *Mets*. I recounted to him, all that I had done, he cauſed two hundred crownes to be given me, and one hundred I had at my going out, and told me he would not leave me poore; then I thanked him moſt humbly of the good and the honour which he pleaſed to doe me.

The Voyage of Hedin, 1553.

CHarles the Emperor cauſed the Citty of *Therouenne* to be beſeiged, where Monſieur the Duke of *Savoy*, was Generall of the whole army: it was taken by aſſault where there was a great number of our men ſlaine and priſoners. The King willing to prevent that the enemy ſhould not alſo come to beſeige the Citty & Caſtle of *Hedin*, ſent *Meſſiers* the Duke *Bouillion*, the Duke *Horace*, the Marqueſſe of *Villars*, a number of Captaines, and about eight hundred ſouldiers, & during the ſeige of *Therouenne*, the ſayd Lords fortified the ſayd Caſtle of *Hedin*, in ſuch ſort that it ſeemed impregnable. The King ſent me to the ſayd Lords to helpe them with my Art, if there were any neede. Now ſoone after the taking of *Therouenne*, we were beſeiged with the army: there was a quicke cleare fountaine or Spring, within Cannon ſhot, where there was about foureſcore whores, and wenches of the enemies, who were round about it to draw water. I was upon a Rampart beholding the Campe, and ſeeing ſo many idlers about the ſayd fountaine, I prayed Monſieur *de Pont* Commiſſary of the Artillery, to make one Cannon ſhot, at that roguiſh company, he made me much deniall, anſwering me that ſuch kind of people were not worth the powder they ſhould waſte,

waſte. Againe I prayed him to levell the Cannon, telling of him, the more dead the fewer enemies; which he did through my requeſt, and at that ſhot fifteene or ſixteene were kild and many hurt. Our ſouldiers ſallied forth upon the enemies, where there was many kild, and ſlaine with musket ſhot and ſwords, as well on the one ſide, as of the other, and our ſouldiers did often make ſallyes forth upon the enemies before their trenches were made; where I had much worke cut out, ſo that I had no reſt night nor day for dreſſing the wounded. And I will tell this by the way, that we had put many of them in a great Tower, layd upon a little ſtraw, and their pillowes were ſtones, their coverlets were their cloakes, of thoſe that had any. Whilſt the battery was making, as many ſhot as the Cannons made, the patients ſayd they felt paine in their woundes, as if one had given them blowes with a ſtaffe, the one cry'd his head, the other his arme, and ſo of other parts; divers of their wounds bled afreſh yea in greater quantity than firſt when they were wounded, and then it was I muſt runne to ſtay their bleeding. My little maſter, if you had beene there, you had beene much troubled with your hot irons, you had neede to have had much charcoale to make them red hot, and beleeve they would have ſlaine you like a Calfe for this cruelty. Now through this diabolicall tempeſt of the Eccho from theſe thundring Inſtruments, and by the great and vehement agitation of the colliſion of the ayre reſounding and reverberating in the wounds of the hurt people, divers dyed, and others becauſe they could not reſt by reaſon of the groanes and cryes that they made, night and day; and alſo for want of good nouriſhment and other good uſage neceſſary to wounded people. Now my little maſter, if you had beene there, you would hardly have given them gelly, reſtauratives, culliſes, preſſures, panado, cleanſed barly, white meate, almond milke, Prunes, Raiſons, and other proper meates for ſicke people: your ordinance would onely have beene accompliſht in paper, but in effect they could have had nothing but old Cow beefe, which was taken about *Hedin* for our munition, ſalted and halfe boyled, inſomuch that who would have eate it he muſt pull it with the force of his teeth, as birds of Prey doe carrion. I will not forget their linnen wherewith they were dreſt, which was onely rewaſhed every day, and dryed at the fire, and therefore dry & ſtubborne like Parchment, I leave you to thinke how their wounds could heale well. There was foure luſty whores to whom charg was given to waſh their linnen, who diſcharged their duty under penalty of the batoone, and alſo they wanted both ſoape and water. See then how the ſicke people dyed for want of nouriſhments, and other neceſſary things. One day our enemies fained to give us a generall aſſault, to draw our Souldiers upon the breach, to the end to know our countenance and behaviour: every one ranne thither, we had made great proviſion of artificiall fire, to defend the breach; a Prieſt belonging to Monſieur *du Boüillon* tooke a granado, thinking to throw it on the enemies, and ſet it on fire ſooner then he ought to have done: it brake aſunder, and the fire fell amongſt our fire workes, which were put into a houſe neere the breach; which was to us a mervelous diſaſtre, becauſe it burned diverſe poore ſouldiers: it alſo tooke hold on the houſe it ſelfe, and we had beene all burned had not great helpe beene uſed for to quench it; there was but one Well there wherein was water in our Caſtle, which was almoſt quite dryed up, and in ſteede of water, we tooke beere and quenched it: then afterwards we had great ſcarcity of water; and to drinke the reſt that remained which we muſt ſtraine through napkins.

Now the enemy ſeeing this ſmoake and tempeſt of the fire workes which caſt a very great flame and claſhing noyſe, beleeved wee had put the fire on purpoſe for the defence of our breach, to burne them, and that wee had great ſtore of others. That made them to be of another opinion, than to take us by aſſault; they did undermine, and digge into the greateſt part of our walls, ſo that it was the way to overthrow wholly the Caſtle topſie turvie, and when the mines were finiſht, and that their Artillery ſhot, the whole Caſtle did ſhake under us, like an earthquake, which did much aſtoniſh us. Moreover he had levelled five peeces of Artillery which they had ſeated upon a little hill, to play upon our backes when wee ſhould goe to defend the breach.

The Duke *Horace* had a Cannon ſhot upon one ſhoulder, which caried away his arme on one ſide, and the body on the other, without being able to ſpeake one onely word. His death was to us a great diſaſture for the ranke which hee held in this place.

Likewiſe Monſieur *de Martigues* had a ſtroake with a Bullet which peirc't through his Lungs; I dreſt him, as I will declare hereafter. Then we demanded Parle, and a Trumpet was ſent toward the Prince of *Piedmont*, to know what compoſition it pleaſed him to make us: His anſwer was, that all the chiefe, as Gentlemen, Captaines, Lievtenants, and Enſignes, ſhould be taken for ranſome, and the Souldiers ſhould goe out without Armes; and if they refuſed this faire and honeſt proffer, the next day we ought to be aſſured they would have us by aſſault or otherwiſe. Counſell was held, where I was called to know if I would ſigne as divers Captaines, Gentlemen and others, that the place ſhould bee rendred up. I made anſwer it was not poſſible to be held, and that I would ſigne it with my proper blood, for the little hope that I had, that wee could reſiſt the enemies force, and alſo for the great deſire which I had to be out of this torment, and hell; for I ſlept not eyther night or day, by reaſon of the great number of hurt people, which were about two hundred. The dead bodies yeelded a great putrifaction, being heaped one upon the other like Fagots, and not being covered with earth becauſe we had it not; and when I entred into one lodging, Souldiers attended me at the dore to goe dreſſe others at another; when I went forth, there was ſtriving who ſhould have me, and they carried me like a holy body not touching the ground with my foote in ſpight one of another, nor could I ſatiſfie ſo great a number of hurt people. Moreover I had not what was neceſſary to dreſſe them withall; for it is not ſufficient that the Chirurgion doe his duty towards the patients, but the patient muſt alſo doe his, and the aſſiſtance, and all exterior things; witneſſe *Hippocrates* in his firſt *Aphoriſme*. Now having underſtood the reſolution of the yeelding up of our place, I knew our affaires went not well; and for feare of being knowne I gave a veluet Coate, a Satin doublet, a very fine cloth cloak lin'd with velvet, to a Souldier, who gave me a ſcurvy old torne doublet cut and ſlaſht with uſing, and a leather jerkin well examined, and an ill favoured hat, and a little cloake; I ſmutcht the collar of my ſhirt with water in which I had mingled a little ſoote; likewiſe I wore out my ſtockings with a ſtone at the knees and the heeles as if they had beene worne a long time, and I did as much to my ſhooes, in ſo much that they would rather take me for a Chimney ſweeper, than a Kings Chirurgion. I went in this equipage towards Monſieur *de Martigues*, where I pray'd him that he would take order that I might remaine neare him to dreſſe him, which he agreed to moſt willingly, and had as much deſire I ſhould remaine with him as I my ſelfe. Soone after, the Commiſſioners who had charge to elect the priſoners, entred into the Caſtle, the ſeaventeenth day of *Iuly* one thouſand five hundred fifty three, where they made *Meſſieurs* the Duke of *Boüillon*, the Marqueſſe of *Villars*, the Baron of *Culan*, Monſieur *du Pont* commiſſary of the Artillery, and Monſieur *de Martigues* and I to be taken through the requeſt that he made to them; and all other Gentlemen which they could perceive were able to pay any ranſome, and the moſt part of the Souldiers and the cheefe of the Companies, having ſuch, and ſo many priſoners as they would.

Afterward the *Spaniſh* Souldiers entred by the Breach without any reſiſtance, for ours eſteemed they would hold their faith and compoſition that they ſhould have their lives ſaved. They entred in with a great fury to kill, pillage, and riſle all they retained: ſome hoping to have ranſome, they tyed their ſtones with Arquebuſe cords, which was caſt over a Pike which two held upon their ſhoulders, then pulled the ſaid cord with a great violence and deriſion, as if they would ring a Bell, telling them that they muſt put themſelves to the ranſome, and tell of what houſes they were; and if they ſaw they could have no profit, made them cruelly dye betweene their hands, or preſently after their genitall parts would have falne into a Gangreene, and totall mortification; but they kild them all with their Daggers, and cut their throats. See now their great cruelty and perfidiouſneſſe, let him truſt to it that will. Now to returne to my purpoſe being lead from the Caſtle to the Citty with Monſieur *de Martigues*, there was a Gentleman of the Duke of *Savoyes*, who asked mee if Monſieur *de Martigues* wound was curable, I anſwered, not; who preſently went and told the Duke of *Savoy*; now I thought he would ſend Phyſitions and Chirurgions to viſit and dreſſe my ſaid Monſieur *de Martigues*: in the meane time I thought with my ſelfe whether I ought to make it nice and not to acknowledge my ſelfe a Chirurgion for feare leaſt they ſhould retaine mee to dreſſe their wounded, and in the end they would know I was the Kings Chirurgion, and that they would make me pay a great ranſome. On the other ſide I feared, if I ſhould not make my ſelfe knowne to bee a Chirurgion, and to have carefully dreſſed Monſieur *de Martigues*, they would cut my throate, ſo that I tooke a reſolution to make it appeare to them he would not dye for want of good dreſſing and looking to. Soone after, ſee, their arrives divers gentlemen accompanied with the Phyſition and Chirurgion to the Emperour, and thoſe of the ſaid Duke of *Savoy*, with ſixe other Chirurgions following the Army, to ſee the hurt of the ſaid Lord of *Martigues*, and to know of mee how I had dreſſed him, and with what medicines. The Emperours Phyſition bid me declare the eſſence of the wound, and how I had dreſt it. Now all the aſſiſtance had a very attentive eare to know if the wound were mortall or not: I began to make a diſcourſe that Monſieur *de Martigues* looking over the wall to perceive them that did undermine it, received a ſhot from an Arquebuſe quite through the body; preſently I was called to dreſſe him, I ſaw hee caſt blood out of his mouth, and his wounds. Moreover he had a great difficultie of breathing, and caſt out winde by the ſaid wounds with a whiſtling, in ſo much that it would blow out a Candle, and he ſaid he had a moſt ſharpe pricking paine at the entrance of the Bullet. I doe beleeve and thinke it might bee ſome little peeces of bones which prickt the Lungs. When they made their Syſtole and Diaſtole, I put my finger into him; where I found the entrance of the Bullet to have broken the fourth Rib in the middle and ſcales of bones which the ſaid Bullet had thruſt in, and the outgoing of it had likewiſe broken the fift Rib with peeces of bones which had beene driven from within outward; I drew out ſome but not all, becauſe they were very deepe and adherent. I put in each wound a Tent, having the head very large, tyed with a thread, leaſt by the inſpiration it might bee drawne into the capacity of the *Thorax*, which hath beene knowne by experience to the detriment of the poore wounded; for being fallen in, it cannot be taken out, which is the cauſe that engenders putrifaction, a thing contrary to nature. The ſaid Tents were annointed with a medicine compos'd of yolks of Egges, *Venice* Turpentine, with a little oyle of Roſes: My intention for putting the Tents was to ſtay the flux of blood, and to hinder that the outward ayre did not enter into the breaſt, which might have cooled the Lungs and by conſequent the heart. The ſaid Tents were alſo put, to the end that iſſue might bee given for the blood that was ſpilt within the *Thorax*. I put upon the wound great Emplaſters of *Diacalcitheos* in which I had relented oyle of Roſes and Vinigar to the avoyding of inflammation, then I put great ſtupes of *Oxycrate*, and bound him up, but not hard, to the end he might have eaſie reſpiration; that done I drew from him five porrengers of blood from the Baſilicke veine of the right arme, to the end to make revulſion of the blood which runs from the wounds into the *Thorax*, having firſt taken indication from the wounded part, and cheefely his forces, conſidering his youth and his ſanguine temper; Hee preſently after went to ſtoole, and by his urine and ſeege caſt great quantity of blood. And as for the paine which he ſaid he felt at the entrance of the Bullet which was as if he had beene pricked with a bodkin, that was becauſe the Lungs by their motion beate againſt the ſplinters of the broken Rib. Now the Lungs are covered with a coate comming from the membrane called *Pleura*, interweaved with nerves of the ſixt conjugation from the braine, which was cauſe of the extreame paine he felt; likewiſe he he had a great difficultie of breathing, which proceeded from the blood which was ſpilt in the capacitie of the *Thorax*, and upon the *Diaphragme*, the principall inſtrument of reſpiration, and from the dilaceration of the muſcles which are betweene each Rib, which helpe alſo to make the expiration and the inſpiration; and likewiſe becauſe the Lungs were torne and wounded by the Bullet, which hath cauſed him ever ſince to ſpit blacke and putrid blood in coughing. The Feaver ſeazed him ſoone after he was hurt, with faintings and ſwoonings. It ſeemed to mee that the ſaid feaver proceeded from the putredinous vapours ariſing from the blood which is out of his proper veſſells, which hath fallen downe, and will yet flow downe. The wound of the Lungs is growne great and will grow more great, becauſe it is in perpetuall motion, both ſleeping and waking, and is dilated and compreſt to let in the aire to the heart, and caſt fuliginous vapours out: by the unnaturall heate is made inflammation, then the expulſive vertue is conſtrained to caſt out by cough whatſoever is obnoxious unto it: for the Lungs cannot be purged but by coughing, & by coughing the wound is dilated, and growes greater, from whence the blood iſſues out in great aboundance, which blood is drawne from the heart by the veine arteriall to give them nouriſhment, and to the heart by the *vena cava*; his meate was barly broth, ſtewed prunes, ſometimes *panado*; his drinke was Ptiſan: He could not lye but upon his backe which ſhewed he had a great quantity of blood ſpilt within the capacity of the *Thorax*, and being ſpread or ſpilled along the ſpondills, doth not ſo much preſſe the Lungs as it doth being laid on the ſides or ſitting.

What ſhall I ſay more, but that the ſaid Lord *Martigues* ſince the time hee was hurt hath not repoſed one houre onely, and hath alwayes caſt out bloody urines and ſtooles. Theſe things then *Meſſieres* conſidered, one can make no other prognoſticke but that he will dye in a few dayes, which is to my great greefe. Having ended my diſcourſe I dreſt him as I was wont; having diſcovered his wounds, the Phyſitions and other aſſiſtants preſently knew the truth of what I had ſaid.

The ſaid Phyſitions having felt his pulſe and knowne his forces to be almoſt ſpent, and aboliſhed, concluded with mee that in a few dayes he would dye; and at the ſame inſtant went all toward the Lord of *Savoy*, where they all ſaid, that the ſaid Lord *Martigues* would dye in a ſhort time, he anſwered, it were poſſible if hee were well dreſt he might eſcape. Then they all with one voyce ſaid, hee had beene very well dreſt, and ſollicited with all things neceſſary for the curing of his wounds, and could not be better, and that it was impoſſible to cure him, and that his wound was mortall of neceſſity. The Monſieur *de Savoy* ſhewed himſelfe to bee very much diſcontented and wept, and asked them againe if for certaine they all held him deplored and remedileſſe, they all anſwered, yes. Then a certaine *Spaniſh* impoſtor offered himſelfe, who promiſed on his life that he would cure him, and if he failed to cure him, they ſhould cut him in an hundred peeces; but he would not have any Phyſitions, Chirurgions or Apothecaries with him. And at the ſame inſtant the ſayd Lord of *Savoy* told the Phyſitions and Chirurgions they ſhould not in any wiſe goe any more to ſee the ſayd Lord of *Martigues*. Alſo he ſent a Gentleman to me to forbid me upon paine of life not to touch any more the ſaid Lord of *Martigues*, which I promiſed not to doe; wherefore I was very glad, ſeeing he ſhould not dye in my hands, and commanded the ſaid impoſtor to dreſſe the ſaid Lord of *Martigues*. And that he ſhould have no other Phyſitions nor Chirurgions but him; he came preſently to the ſaid Lord of *Martigues*, who told him,

Senor Cavallero el ſenor Dugue me ha mandado que vinieſſe a curar voſtra herida, yo os juro á Dios que antes de acho dias yo os haga ſubir a Cavallo con la lanſa en puno contalque no ago que yo qúos togue, Comereis y bibereis todas comidas que fueren de voſtro guſto y yo hare la dieta pro V. m. y deſto os de veu aſeguirar ſobre de mi, yo he ſanado mun hos que tenian magores heridas que la Voſtra. That is to ſay, Lord *Cavalleere*, Monſieur the Duke of *Savoy* hath commanded me to come dreſſe thy wound; I ſweare to thee by God, that before eight dayes I will make thee mount on horſebacke with thy Lance in thy hand, provided, that no man may touch thee but my ſelfe; thou ſhalt eate and drinke any thing thou haſt a minde to, I will performe thy diet for thee, and of this thou maiſt be aſſured upon my promiſe, I have cured divers who have had greater wounds than thine: and the Lord replyed, God give you the grace to doe it.

He demanded of the ſayd Lord a ſhirt and tore it in little ragges, which hee put a croſſe, muttering, and murmuring certaine words over the wound; and having dreſt him, permitted him to eate and drinke what he would, telling him hee would obſerve a dyet for him, which he did, eating but ſix prunes and ſixe bits of bread at a meale, and drinking but beere. Notwithſtanding, two dayes after, the ſayd Lord of *Martigues* dyed; and my *Spaniard*, ſeeing of him in the agony, eclipſt himſelfe and got away without bidding, farewell to any body; and I beleeve if he had beene taken he had bin hang'd for his falſe promiſes, which he had made to Monſieur the Duke of *Savoy*, and to divers other gentlemen.

He dyed about tenne of the clocke in the morning, and after dinner, the ſayd Lord of *Savoy*, ſent Phyſitions and Chirurgions and his Apothecary, with a great quantity of Drogues, to embalme him; they came accompanied with divers gentlemen and Captaines of the Army.

The Emperors Chirurgion came neere to me, and prayed me kindly to open the body; which I refuſed, telling him I was not worthy to carry his plaſter boxe after him: he prayed me againe, which then I did for his ſake, if it ſo liked him. I would yet againe have excuſed my ſelfe, that ſeeing he was not willing to embalme him, that he would give this charge to another Chirurgion of the company; he made me yet anſwere, that he would it ſhould be I, and if I would not doe it, I might hereafter repent it: knowing this his affection, for feare he ſhould not doe me any diſpleaſure, I tooke the raſor and preſented it to all in particular, telling them I was not well practiſed to doe ſuch operations which they all refuſed.

The body being placed upon a table, truely I purpoſed to ſhew them that I was an Anatomiſt, declaring to them diverſe things, which ſhould be heere too long to recite. I began to tell all the company that I was ſure the bullet had broken two ribs, and that it had paſt through the Lungs, and that they ſhould finde the wound much enlarged, becauſe they are in perpetuall motion, ſleeping or waking, and by this motion the wound was the more dilacerated. Alſo that there was great quantity of blood ſpilt in the capacity of the breſt, and upon the midriffe, and ſplinters of the broken ribbes which were beaten in at the entrance of the bullet, and the iſſuing forth of it, had carried out. Indeed all which I had told them was found true in the dead body.

One of the Phyſitions asked me, which way the blood might paſſe to be caſt out by Vrine, being contained in the *Thorax*. I anſweared him that there was a manifeſt conduit, which is the *Vena Azygos*, who having nouriſht the ribbes, the reſt of the blood deſcends under the *Diaphragme*, and on the left ſide is conjoyned to the emulgent veine, which is the way by which the matter in *pleureſies* and in *Empiema*, doe manifeſtly empty themſelves by urine and ſtoole. As it is likewiſe ſeene, the pure milke of the breſts of women newly brought to bed, to deſcend by the *Mammillary* Veines, and to be evacuated downewards by the necke of the wombe without being mixt with the blood. And ſuch a thing is done (as it were by a miracle of nature) by her expulſive and ſequeſting vertue, which is ſeene by experience of two glaſſe veſſells called Mount-wine; let the one be filled with water, and the other with Claret wine, and let them be put the one upon the other, that is to ſay, that which ſhall bee filled with water, upon that which ſhall be filled with wine; and you ſhall apparently ſee the wine mount up to the top of the veſſell quite through the water, and the water deſcend atraverſe the wine, and goe to the bottome of the veſſell without mixture of both; and if ſuch a thing be done ſo exteriorly and openly to the ſenſe of our eye, by things without life: you muſt beleeve the ſame in our underſtanding. That nature can make matter and blood to paſſe, having beene out of their veſſells yea through the bones without being mingled with the good blood.

Our diſcourſe ended, I embalmed the body, and put it into a Coffinne; after that the Emperors Chirurgion tooke me apart, and told me if I would remaine with him that he would uſe me very well, and that he would cloath me anew, alſo that I ſhould ride on horſebacke. I thanked him very kindly for the honour he did me, and told him that I had no deſire to doe ſervice to ſtrangers, and enemies to my Countrey; then he told mee I was a foole, and if he were priſoner as I, hee would ſerve the divell to get his liberty. In the end I told him flat that I would not dwell at all with him.

The Emperors Phyſition returned toward the ſayd Lord of *Savoy*, where he declared the cauſe of the death of the ſayd Lord of *Martigues*, and told him that it was impoſſible for all the men in the would to have cured him; and confirmed againe, that I had done what was neceſſary to be done, and prayed him to winne mee to his ſervice, and ſpoke better of me than I deſerved.

Having beene perſwaded to take me to his ſervice, he gave charge to one of his ſtewards named Monſieur *du Bouchet*, to tell me, if I would dwell in his ſervice that he would uſe me kindly: I anſwered him, that I thank't him moſt humbly, and that I had reſolved not to dwell with any ſtranger. This my anſwer being heard by the Duke of *Savoy*, he was ſomewhat in choller, and ſayd, hee would ſend mee to the Gallies.

Monſieur *de Vaudeville*, Governour of *Gravelin*, and Colonell of ſeaventeene Enſignes of foote, prayed him, to give me to him, to dreſſe him of an Vlcer which he had in his Leg this ſix or ſeaven yeares; Monſieur *de Savoy* told him becauſe I was of worth, that he was content, and if I ranckled his Leg it would be well done; Hee anſwered that if hee perceaved any thing, that hee would cauſe my throate to be cut.

Soone after, the ſaid Lord of *Vaudeville* ſent for me by fowre Germane Halberdiers, which affrighted me much, not knowing whither they led mee, they ſpake no more *French* than I high *Dutch*; being arrived at his lodging, he told mee I was welcome, and that I was his; and as ſoone as I ſhould have cured him of that Vlcer in his Leg, that he would give me leave to be gone without taking any ranſome of me. I told him I was not able to pay any ranſome.

Then he made his Phyſition and Chirurgions in ordinary to ſhew mee his ulcerated Leg; having ſeene and conſidered it, we went apart into a Chamber where I began to tell them, that the ſaid Vlcer was annuall, not being ſimple but complicated: that is to ſay, of a round figure, and ſcaly, having the lips hard and callous, hollow and ſordid, accompanied with a great varicous veine which did perpetually feede it; beſides a great tumor, and a phlegmonous diſtemper very painefull through the whole Leg, in a body of cholericke complexion; as the haire of his face and beard demonſtrated. The method to cure it (if cured it could be) was to begin with univerſall things, that is, with purgation and bleeding, and with this order of dyet, that hee ſhould not uſe any wine at all, nor any ſalt meates, or of great nouriſhment, chiefely theſe which did heat the blood: afterward the cure muſt begun with making divers ſcarifications about the Vlcer, and totally cutting away the callous edges or lips, and giving a long or a triangular figure, for the round will very hardly cure, as the Ancients have left it in writing, which is ſeene by experience. That done, the filth muſt be mundified, as alſo the corrupted fleſh, which ſhould be done with *Vnguentum Ægyptiacum*, and upon it a bolſter dipt in juice of Plantaine and Nightſhade and *Oxycrate*, and roule the Leg beginning at the foote, and finiſhing at the knee, not forgetting a little bolſter upon the *Varicous* veine, to the end no ſuperfluities ſhould flow to the Vlcer. Moreover that he ſhould take reſt in his bed, which is commanded by **Hippocrates**, who ſaith, that thoſe who have ſoare Legs ſhould not uſe much ſtanding or ſitting, but lying along. And after theſe things done and the Vlcer well mundified, a plate of Lead rubbed with quickeſilver ſhould be applyed. See then the meanes, by which the ſaid Lord *Vaudeville* might be cured of the ſaid Vlcer; all which they found good. Then the Phyſition left mee with the Chirurgion, and went to the Lord *Vaudeville*, to tell him that he did aſſure him I would cure him, and told him all that I had reſolved to doe, for the cure of his Vlcer: whereof hee was very joyfull. He made mee to bee called to him, and asked me if I was of the opinion that his Vlcer could be cured, and I told him, yes, provided he would be obedient to doe what he ought. He made me a promiſe hee would performe all things which I would appoint; and as ſoone as his Vlcer ſhould be cured, he would give me liberty to returne without paying any ranſome. Then I beſeech't him to come to a better compoſition with me, telling him that the time would be too long to bee in liberty, if I ſtayd till hee was perfectly well, and that I hoped within fifteene dayes the Vlcer ſhould bee diminiſhed more than one halfe, and it ſhould bee without paine, and that his Phyſitions and Chirurgions would finiſh the reſt of the cure very eaſily. To which hee agreed, and then I tooke a peece of paper, and cut it the largeneſſe of the Vlcer, which I gave him, and kept as much my ſelfe. I prayd him to keepe promiſe, when he ſhould finde his buſineſſe done: He ſwore by the faith of a Gentleman he would doe it; then I reſolved to dreſſe him well, according to the method of *Galen*, which was, that after all ſtrange things were taken out of the Vlcer, and that there wanted nothing but filling up with fleſh, I dreſt him but once a day, and he found that very ſtrange. And likewiſe his phyſition which was but a freſh man in thoſe affaires, who would perſwade mee with the Patient, to dreſſe him two or three times a day, I prayd him to let me doe what I thought good; and that it was not to prolong the cure, but on the contrary to haſten it, for the great deſire I had to be in liberty. And that he would looke in *Galen* in the fourth book of the compoſition of medicaments *ſecundum genera*, who ſaith, that if a medicine doe not remaine long upon the part it profits not ſo much, as when it doth continue long, a thing which many Phyſitions have beene ignorant of, and have thought it hath beene better to change the Plaſter often. And this ill cuſtome is ſo inveterate and rooted, that the Patients themſelves accuſe oftentimes the Chirurgions of negligence, becauſe they doe not oftner remove their emplaſters; but they are deceived. For as you have underſtood and read in my workes in divers places: The qualities of all bodies which mutually touch, operate one againſt another, and both of them ſuffer ſomething, where one of them is much ſtronger than the other, by meanes whereof the ſaid qualities are united, they familiariſe with the time, although they are very much differing from the manner, that the quality of the medicament doth unite, and ſometimes becomes like to that of the body, which is a very profitable thing. Therefore they ſay, he is to be praiſed much who firſt invented not to change the Plaſters ſo often, becauſe it is knowne by experience, this is a good invention.

Moreover it is ſaid, great fault is committed to dreſſe Vlcers often in wiping of them hard, for one takes not away onely the unprofitable excrement, which is the *pus* or *Sanies* of the Vlcer, but the matter whereof the fleſh is engendred; wherefore for the reaſons aforeſaid it is not needefull to dreſſe Vlcers ſo often.

The ſaid Lord *Vaudeville*, would ſee whether that which I alledged out of *Galen* were true, and commanded the ſaid Phyſition to looke there, for that hee would know it; he cauſed the booke to be brought upon the table, where my ſaying was found true, and then the Phyſition was aſhamed, and I very joyfull. So that the ſaid Lord of *Vaudeville* deſired not to bee dreſſed but once a day, in ſo much that within fifteene dayes the Vlcer was almoſt cicatrized; the compoſition being made betweene us, I began to be merry. He made me eate and drinke at his Table, when there was not men of more great ranke with him.

He gave me a great red ſcarſe, which hee commanded me to weare. I may ſay I was as glad of it as a dog that hath a clog, for feare he ſhould goe into the vineyard and eate the grapes. The Phyſition and Chirurgion led mee through the Campe to viſit their hurt people, where I tooke notice what our enemies did; I perceived they had no more peeces of Cannon, but onely twenty five or thirty peeces for the field.

Monſieur *de Vaudeville* held Monſieur *de Bauge* priſoner, the brother of Monſieur *de Martignes* who dyed at *Hedin*. The ſaid Lord of *Bauge* was priſoner in the Caſtle of the heape of wood belonging to the Emperour, who had beene taken at *Theroüenne* by two *Spaniſh* Souldiers. Now the ſaid Lord of *Vaudeville* having looked well upon him, conceived he muſt be a Gentleman of ſome good houſe, and to be the better aſſured, he cauſed him to have his ſtockings pulled off, & ſeeing his ſtockings and his feete cleare and neate, together with his white fine ſocke, it confirmed him the better in his opinion, that it was a man was able to pay ſome good ranſome. He demands of the Souldiers if they would take thirty Crownes for their priſoner, and that he would give it to them preſently, to which they agreed willingly, becauſe they had neither meanes to keepe him, nor feede him; beſides they knew not his worth, therefore they delivered their priſoner into the hands of the ſaid Lord of *Vaudeville*, who preſently ſent him to the Caſtle of the heape of wood with a guard of foure Souldiers with other Gentlemen priſoners of ours. The ſaid Lord *Bauge* would not diſcover himſelfe, who hee was, and endured very much, being kept but with bread and water, and lay upon a little ſtraw. The ſaid Lord of *Vandeville* after the taking of *Hedin*, ſent word to the ſaid Lord *Bauge* and other priſoners, that the place of *Hedin* was taken, and the liſt of thoſe that had beene ſlaine, and amongſt the reſt reſt, Monſieur *de Martigues*, and when the ſaid Lord of *Bauge* heard the ſound of the death of his brother the Lord *Maatigues*, he began much to weepe and lament; his keeper demanded of him, why he made ſo many & ſo great lamentations? He declared unto them that it was for Monſieur *de Martigues* his brothers ſake. Having underſtood that, the Captaine of the Caſtle diſpatcht a man away quickly, to tell it to Monſieur *de Vandeville* that he had a good priſoner; who having received this good newes rejoyced greatly, and the next day ſent me with his Phyſition and foure Souldiers to the wood Caſtle to know if his priſoner would give him fifteene thouſand Crownes for a ranſome; he would ſend him free to his owne houſe, and for the preſent he deſired but the ſecurity of two Merchants of *Antwerp*, that hee would name. The ſaid Lord *Vaudeville* perſwaded me that I would make his agreement with his priſoner. See then why he ſent me to the wooden Caſtle, and commanded the Captaine of the Caſtle to uſe him well, and to put him into a Chamber hung with Tapeſtrie, and that they ſhould make his guard more ſtrong, and from that time they made him good cheare at his expence.

The anſwer of the ſaid Lord of *Bauge* was, that to put himſelfe to ranſome hee was not able; and that, that depended upon Monſieur *d'Eſtamps* his Vnckle, and of Miſtriſſe *de Breſſure* his Aunt, and that he had not any meanes to pay ſuch a ranſome. I returned with my keepers to the ſaid Lord *Vaudeville*, and told him the anſwer of his ſaid priſoner, who told me, Perhaps he ſhould not out at ſo good a rate, which was true, for he was diſcovered. And forthwith the Queene of *Hungary*, and the Duke of *Savoy* ſent word to the Lord *Vaudeville*, that this morſell was too great for him, and that he muſt ſend him to them, (which he did) and that he had enough priſoners beſides him: he was put to forty thouſand Crownes ranſome beſides other expenſes.

Returning toward the ſaid Lord *Vandeville* I paſſed by S. *Omer*, where I ſaw their great peeces of battery, whereof the greateſt part was flawed and broken. I came backe alſo by *Theroüenne*, where I did not ſee ſo much as ſtone upon ſtone, unleſſe the marke of a great Church. For the Emperour gave commandement to the country people within five or ſix leagues about, that they ſhould empty and carry away the ſtones; in ſo much, that now one may drive a Cart over the Citty, as is likewiſe done at *Hedin*, without any appearance of Caſtle or Fortreſſe. See then the miſcheefe which comes by the warres.

And to returne to my purpoſe, preſently after my ſaid Lord *Vaudeville* was very well of his Vlcer and little wanted of the entire cure, which was the cauſe hee gave me my leave, and made me be conducted with a Paſſeport by a Trumpet to *Abbeville*, where I tooke poſt, and went and found the King *Henry* my Maſter at *Auſimon*, who received me with joy, and a good countenance.

He ſent for the Duke of *Guiſe* the high Conſtable of *France*, and Monſieur *d'Eſtrez*, to underſtand by me what had paſt at the taking of *Hedin*; and I made them a faithfull report, and aſſured them I had ſeene the great peeces of Battery, which they had carried to S. *Omer*. Whereof the King was very joyfull, becauſe hee feared leaſt the enemy ſhould come further into *France*. He gave me two hundred Crownes to retire my ſelfe to my owne houſe, and I was very glad to bee in liberty and out of this great torment and noiſe of Thunder from the Diabolicke artillery, and farre from the Souldiers, blaſphemers and deniers of God. I will not omit to tell here that after the taking of *Hedin*, the king was advertiſed that I was not ſlaine, but that I was a priſoner, which his Majeſtie cauſed to be written to my wife by Monſieur *du Goguier* his cheefe Phyſition, and that ſhee ſhould not be in any trouble of mind for me, for that I was ſafe and well, and that he would pay my ranſome.

The Battell of S. *Quintin*. 1557.

AFter the battell of S. *Quintin*, the King ſent me to the Fere in *Tartemis* toward Monſieur the Marſhall of *Bourdillon*, to have a Paſſeport by the Duke of *Savoy* to goe to dreſſe Monſieur the Conſtable, who was grievouſly hurt with a Piſtoll ſhot in the backe, whereof hee was like to dye, and remained a priſoner in his enemies hands. But the Duke of *Savoy* would never give conſent that I ſhould goe to the ſaid Lord Conſtable, ſaying hee ſhould not remaine without a Chirurgion, and that he doubted I was not ſent onely to dreſſe him, but to give him ſome advertiſement, and that he knew I underſtood ſomething elſe beſides Chirurgery, and that he knew me to have beene his priſoner at *Hedin*. Monſieur the Marſhall of *Bourdillon* advertized the King of the Dukes deniall, by which meanes the King writ to the ſaid Lord of *Bourdillon*, that if my Lady, the Lord high Conſtables wife, did ſend any body of her houſe; which was an able man, that I ſhould give him a letter, and that I ſhould alſo have told him by word of mouth, what the King and Monſieur the Cardinall of *Lorraine* had given me in charge. Two dayes after there arrives a ſervant of the Lord Conſtables Chamber, who brought him ſhirts, and other linnen, for which the ſayd Lord Marſhall gave Paſſe-port, to goe to the ſayd Lord Conſtable; I was very glad thereof, and gave him my letter, and gave him his leſſon, of that which his Maſter ſhould doe, being priſoner. I had thought being diſcharged of my embaſſage to returne toward the King. But the ſayd Lord of *Bourdillon* pray'd me to ſtay with him at the Fere to dreſſe a great number of people who were hurt, and were thither retired after the battell; and that he would ſend word to the King, the cauſe of my ſtay; which I did. The wounds of the hurt people were greatly ſtincking, and full of wormes with Gangreene and putrifaction; ſo that I was conſtrayned to come to my knife to amputate that which was ſpoyld, which was not without cutting off armes and legges, as alſo to Trepan diverſe. Now there were not any medicines to be had at the Fere, becauſe the Chirurgions of our Campe had carried all with them; I found out that the Chariot of the Artillery tarried behind at the Fere, nor had it yet beene touched. I prayd the ſayd Lord Marſhall that he would cauſe ſome of the drogues to be delivered unto me which were in it; which he did, and there was given to me, one halfe onely at a time, and five or ſixe dayes after I way conſtrayned to take the reſt, neither was there halfe enough to dreſſe ſo great a number of the people, and to correct and ſtay the putrifaction, and to kill the wormes which were entred into their wounds; I waſhed them with *Ægyptiacum* diſſolved in wine and *Aqua vita*, and did for them, all which I could poſſible, yet notwithſtanding all my diligence, very many of them dyed.

There were Gentlemen at the Fere who had charge to finde out the dead body of Monſieur *de Bois-Dolphin* the elder, who had beene ſlaine in the battell; they prayed me to accompany them to the Campe to finde him out amongſt the dead, if it were poſſible, which indeed was impoſſible; ſeeing that the bodyes were all diſfavoured and overwhelmed with putrefaction. We ſaw more than halfe a league about us the earth covered with dead bodyes; neither could we abide long there, for the cadaverous ſents, which did ariſe from the dead bodyes, aſwell of men, as of horſes. And I thinke we were the cauſe, that ſo great a number of flyes, roſe from the dead bodees, which were procreated by their humidity and the heate of the Sunne, having their tayles greene and blew; that being up in the ayre made a ſhaddow in the Sunne We heard them buzze, or humme, which was much mervaile to us. And I thinke it was enough to cauſe the Plague, where they alighted. (My little maſter) I would you had beene there as I was, to diſtinguiſh the ordures and alſo to make report to them which were never there. Now being cloyed and annoyed in that Countrey, I prayd Monſieur the Lord Marſhall, to give me my leave to be gone, and that I was affrayd I ſhould be ſicke, by reaſon of my too great paines, and the ſtinckes which did ariſe from the wounded bodyes, which did almoſt all dye, for what diligence ſoever was uſed unto them. He made other Chirurgions, to come finiſh the dreſſing of the ſayd hurt people, and I went away with his good grace and favour. He wrote a letter to the King, of the paines I had taken with the poore wounded. Then I returned to *Paris*, where I found yet many Gentlemen who had beene hurt, and were there retired after the battell.

The Voyage of the Campe of Amiens, 1558.

THe King ſent me to *Dourlan*, and made me to be conducted by Captaine *Govaſt* with fifty men in armes, for feare I ſhould be taken by the enemies. And ſeeing that in the way we were alwayes in alarums, I cauſed my man to alight, making him to be my maſter for that time, and I got upon his horſe, which carryed my male, and tooke his cloake and hat, and gave him my ambling Mare. My man being upon her backe, one would have taken him for the maſter, and I for the ſervant. Thoſe of *Dourlan* ſeeing us farre off, thought we were enemies, and let flye their Cannon ſhot at us. Captaine *Govaſt* my conductor, made ſigne with his hat, that we were not enemies, ſo that they left ſhooting, and we entred into *Dourlan* with great joy. Thoſe of *Dourlan* made a ſally forth, upon the enemies five or ſixe dayes before, who kild and hurt diverſe of our Captaines, and good ſouldiers; and amongſt the reſt Captaine St. *Aubin* valiant at the ſword, whom Monſieur *de Guiſe* loved very well, and for whom chiefely the King ſent me thither, who being in the fit of a quartaine feaver, would needes goe out to command the greateſt part of his company: a *Spaniard* ſeeing him that he commanded, perceived hee was a Captaine, and ſhot a musket bullet quite through his necke; my Captaine Saint *Aubin* thought with this ſtroake he was dead, and with the feare (I proteſt to God) he loſt his quartane ague, and was altogether freed from it. I dreſſed him with *Anthony Portall* Chirurgion in ordinary to the King, and divers other Souldiers: ſome dyed, others eſcaped quit with the loſſe of a legge, or an arme, or the loſſe of an eye, and they ſayd they eſcaped good cheape, eſcape that can. When the enemie had broke their Campe, I returned to *Paris*. Heere I hold my peace of my little maſter, who was more at eaſe in his houſe than I at the Warres.

The voyage of Harbor *of Grace*, 1563.

YEt I will not omit to ſpeake of the voyage of the *Harbor* of Grace; then when they made the approaches to plant the Artillery, the Engliſh who were within it kild ſome of our Souldiers, & divers Pioners, who undermined, who when they were ſeene to be ſo hurt that there was no hope of curing, their fellowes ſtript them & put them yet alive, in the mines, which ſerved them for ſo much filling earth. The *Engliſh* ſeeing they could not withſtand an aſſault, becauſe they were very much attainted with diſeaſes, and chiefely with the Plague, they yeelded, their lives and jewells ſaved. The King cauſed them to have ſhippes to returne to *England*, being glad to be out of this place infected with the Plague: the greateſt part dyed, and carryed the Plague into *England*, and ſince have not yet beene exempted. Captaine *Sarlabous* maſter of the Campe, was left there in garriſon, with ſixe Enſignes on foote, who had no feare of the Plague, and were very joyfull to enter therein, hoping there to make good cheere. My little maſter had you beene there you had done as they.

The Voyage to Roüen, 1562.

NOw for the taking of *Roüen* they kild divers of ours before the aſſault, and at the aſſault: the day after they entred into the Citty, I Trepaned eight or nine, who were hurt at the breach with the ſtroakes of ſtones. There was ſo malignant an ayre, that divers dyed, yea of very ſmall hurts, inſomuch that ſome thought they had poyſoned their bullets: thoſe within ſayd the like by us, for although they were well treated in their neceſſities within the Citty, yet they dyed alſo aſwell as thoſe without. The King of *Navar* was hurt in the ſhoulder with a bullet ſome few dayes before the aſſault; I viſited and helpt to dreſſe him, with his owne Chirurgion, named

med Maſter *Gilbert* one of the chiefe of *Montpelier*, and others. They could not finde the bullet, I ſearcht for it very exactly, I perceived by conjecture, that it was entred by the head of the *Adiutorium*, and that it had runne into the cavity of the ſayd bone, which was the cauſe we could not finde it. The moſt part of them ſayd it was entred and loſt within the cavity of the body. Monſieur the Prince of the *Rocke upon Yon*, who intimately loved the King of *Navarre*, drew me to one ſide, and aſkt me if the wound was mortall. I told him yea, becauſe all wounds made in great joynts, and principally contuſed wounds, were mortall according to all Authors who have written of them. He enquired of the others what they thought, and cheefely of the ſayd *Gilbert*, who told him that hee had great hope that the King his maſter, would be cured, and the ſayd Prince was very joyfull. Foure dayes after the King and the Queene mother, Monſieur the Cardinall of *Bourbon* his brother, Monſieur the Prince of *Rocke upon Yon*, Monſieur *de Guiſe*, and other great perſonages, after we had dreſſed the King of *Navarre*, cauſed a conſultation to be made in their preſences, where there was diverſe Phyſitions and Chirurgions: each man ſayd what ſeemed good unto him, and there was not one of them, who had not good hope of him; ſaying that the King would be cured, and I perſiſted alwayes on the contrary.

Monſieur the Prince of the *Rocke upon Yon* who loved me, withdrew me aſide, and ſayd I was onely againſt the opinion of all the reſt, and prayd me not to be obſtinate againſt ſo many worthy men. I anſwered him, that when I ſaw any good ſignes of cure, I would change my adviſe. Divers conſultations were made, where I never changed my word, and prognoſticke, ſuch as I had made at the firſt dreſſing, and alwayes ſayd that the arme would fall into a Gangreene, which it did, what diligence ſoever could be had to the contrary; and gave up his ſoule to God the eighteenth day of his hurt. Monſieur the Prince *Vpon Yon*, having heard of the death of the ſayd King, ſent his Phyſition and Chirurgion toward me, named *Feure* now in ordinary to the King, and to the Queene Mother, to tell me, that he would have the bullet taken out, and that it ſhould be lookt for in what place ſo ever it could be found: then I was very joyfull, and told them that I was well aſſured to finde it quickely, which I did in their preſences, and divers gentlemen. It was lodged in the very midſt of the cavity of the Adiutory bone. My ſayd Prince having it, ſhewed it to the King and the Queene, who all ſayd, my prognoſticke was found true. The body was layd to reſt in the Caſtle Galliard, and I returned to *Paris*, where I found divers hurt men who were hurt at the breach at *Roüen*, and cheefely *Italians*, who deſired me very much to dreſſe them, which I did willingly; there were divers that recovered; and others dyed. I beleeve (my little maſter) you were called to dreſſe ſome of them, for the great number there was of them.

The Voyage of the battell of Dreux 1562.

THe day after the battell given at *Dreux*, the King commanded me, to goe dreſſe Monſieur the Count of *Eu*, who had beene hurt with a Piſtoll ſhot in the right thigh, neere the joynt of the hippe; which fractured and broke the *Os femoris* in divers places, from whence divers accidents did ariſe, and then death, which was to my great greefe. The day after my arrivall I would goe to the field, where the battell was given, to ſee the dead bodyes; I ſaw a league about, all the earth covered, where there was by eſtimation five and twenty thouſand men, or more. All which were diſpatcht in the ſpace of two houres. I would (my little maſter) for the love I beare you, that you had beene there to recount it to your ſchollers and to your children. Now in the meane time while I was at *Dreux* I viſited and dreſt a great number of gentlemen and poore Souldiers, & amongſt the reſt many *Swiſſer* Captaines, I dreſſed 14 in one chamber, onely all hurt with Piſtoll ſhot, and other inſtruments of Diabolicall fire, and not one of the fourteene dyed. Monſieur the Count of *Eu* being dead, I made no long tarrying at *Dreux*: there came Chirurgions from *Paris* who performed well their duty toward the hurt people, as *Pigray*, *Cointeret*, *Hubert*, and others; and I returned to *Paris*, where I found diverſe gentlemen wounded, who had retired themſelves thither after the battell to be dreſt of their hurts.

The Voyage of the battell of Moncontor. 1569.

DVring the battell of *Moncontour* King *Charles* was at *Pleſſei* the Towers, where he neard they had wonne it; a great number of hurt gentlemen and Souldiers withdrew themſelves into the Citty and ſuburbes of Towers, to be dreſt and helpt, where the King and Queene Mother commanded me to ſhew my duty with the other Chirurgions, who were then in quarter, as *Pigray, du Bois, Portail*, and one named *Siret*, a Chirurgion of *Towers*, a man very skilfull in Chirurgery, and at that time Chirurgion to the Kings brother; and for the multitude of the wounded wee were but little in repoſe, nor the Phyſitions likewiſe. Count *Mansfield* Governer of the *Duchy* of *Luxembourge*, Knight of the King of *Spaines* order, was greatly hurt in the battell, in the left arme, with a Piſtoll ſhot, which broke a great part of the joynt of the elbow, and had retired himſelfe to *Bourgueil* neere *Towers*; being there he ſent a gentlemen to the King, affectionately to beſeech him to ſend one of his Chirurgions to helpe him in his hurt. Counſell was held what Chirurgion ſhould be ſent. Monſieur the Marſhall of *Montmorency* told the King and the Queene, that it were beſt to ſend him his cheefe Chirurgion, and declared to them that the ſayd Lord *Mansfield* was one part of the cauſe of winning the battell. The King ſayd flat he would not that I ſhould goe, but would have me remaine cloſe to him. Then the Queene Mother ſayd, I ſhould but goe and come, and that he muſt conſider it was a ſtrange Lord, who was come from the King of *Spaines* ſide, to help and ſuccour him. And upon this he permitted me to goe, provided that I ſhould returne quickly. After this reſolution he ſent for me, and likewiſe the Queene Mother, and commanded me to goe finde the ſayd Lord *Mansfield* in the place, where I was to ſerve him in all I could, for the cure of his hurt; I went and found him, having with me a letter from their Majeſties: having ſeene it, he received me with a good will, and from thenceforth diſcharged three other Chirurgions that dreſt him; which was to my great greefe, becauſe his hurt ſeemed to me uncureable. Now at *Bourgueil* there were retired divers gentlmen, who had beene hurt at the ſayd battell, knowing that Mounſieur *de Guiſe* was there, who had beene alſo very mnch hurt with a Piſtoll ſhot through one legge, well aſſured that he would have good Chirurgions to dreſſe him, and alſo that hee being kind and liberall, would aſſiſt them with a great part of their neceſſities. And for my part, I did helpe and ayd them in my Art as much as it was poſſible; ſome dyed, ſome recovered, according to their hurts. The Count *Ringrave* died, who had ſuch a ſhot in the ſhoulder, as the King of *Navarre* before *Roüen*; Monſieure *de Baſſompiere* Colonell of twelve hundred horſe, was hurt alſo in ſuch a like place as Count *Mansfield*, whom I dreſt and God cured. God ſo well bleſſed my worke that within three weekes I led him back to *Paris*, where I muſt yet make ſome inciſions in the arme of the ſayd Lord *Mansfield*, to draw out the bones which were greatly broken and caries'd, he was cured by the grace of God, and gave me an honeſt reward, ſo that I was well contented with him and he with me, as he hath ſince made it appeare: he writ a letter to the Duke of *Aſcot* how that he was cured of his hurt, and alſo Monſieur *de Baſſompiere* of his, and divers others, which I had dreſſ't after the battell of *Montcontour*, and counſelled him to beſeech the King of *France* my good maſter, to give me leave to goe ſee Monſieur the Marqueſſe of *Auret* his brother.

Voyage of Flanders.

MOnſieur the Duke of *Aſcot* did not faile to ſend a Gentleman to the King with a letter, humbly to beſeech him to doe him ſo much good and honour, as to permit and command his cheefe Chirurgion to come ſee the Marqueſſe of *Auret* his brother; who had received a Musket ſhot neare the knee, with fracture of the bone, about ſeaven monthes ſince, with the Phyſitions and Chirurgions in thoſe parts were much troubled to cure. The King ſent for me, and commanded me to goe ſee the ſaid Lord *Auret*, and to helpe him in all that I could for the cure of his hurt; I told him I would imploy all that little knowledge which it had pleaſed God to give me. I went then conducted by two Gentlemen to the Caſtle of *Auret*, which is a league and a halfe from *Mounts* in *Hainaut*, where the ſaid Marqueſſe was: as ſoone as I arrived I viſited him, and told him the King had commanded me to come ſee him, and to dreſſe him of his hurt; he told me he was glad of my comming, and was much bound to the King to have done him the honour, to have ſent me to him. I found him in a great Feaver, his eyes very much ſunke, with a countenance gaſtly and yellow, his tongue drie and rough, and all the body emaciated and leane, his ſpeech low like that of a dying man: then I found his thigh much ſwelled, apoſtemated, ulcerated, and caſting out a greene ſtinking matter; I ſearcht it with a ſilver probe, and by the ſame I found a cavity neare the groyne, ending in the middle of the thigh, and others about the knee, ſanious and cuniculous; alſo certaine ſcales of bones ſome ſeparated, others not. The Legge was much tumified, and ſoaked with a pituitous humor, cold, moiſt, and flatulent; in ſo much that the naturall heate was in the way to be ſuffocated, and extinguiſhed, and the ſaid Legge crooked and retracted toward the buttockes, his rumpe ulcerated the breadth of the palme of an hand, and he ſaid he felt there a great paine and ſmarting, and likewiſe in his reines, in ſo much that hee could not take any reſt night or day; neither had hee any appetite to eate, but to drinke enough; it was told mee hee fell often into faintings and ſwoonings, and ſometimes as it were into an Epilepſie, and had oftentimes deſire to vomit, with ſuch a trembling that hee could not carry his hands to his mouth. Seeing and conſidering all theſe great accidents, and the forces much abated; truly I was much grieved to have gone to him, becauſe me thought there was little appearance that he could eſcape. Notwithſtanding to give him courage and good hope, I told him, that I would quickly ſet him on foote by the grace of God, and the Phyſitions and Chirurgions helpe. Having ſeene him, I went a walking into a Garden, where I prayed to God that hee would give me the grace to cure him, and that hee would give a bleſſing to our hands, and medicaments, to combate againſt ſo many complicated maladies. I bethought in my minde the wayes I muſt keepe to doe it. They called mee to dinner, I entred into the kitchin where I ſaw taken out of a great pot, halfe a Mutton, a quarter of Veale, three great peeces of Beefe, and two Pullets, and a great peece of Bacon, with great ſtore of good Hearbes. Then I ſaid to my ſelfe this broth was full of juice, and of good nouriſhment; After dinner all the Phyſitions and Chirurgions aſſembled, we entred into conference in the preſence of Monſieur the Duke of *Aſcot*, and ſome Gentlemen that did accompany him; I began to tell the Chirurgions that I mervailed much they had made no apertions in the Marqueſſes thigh, which was all apoſtemated, and the matter which iſſued out was very foule and ſtinking, which ſhewed it had a long time lurked there, and that I had found with my probe a *Caries* in the bone, and ſmall ſcales which were already ſeparated; they made mee anſwer, hee would never give conſent, and likewiſe it was almoſt two monthes ſince they could winne him to put on cleane ſheets on his bed, neither duſt one ſcarce touch the coverlet, he feelt ſo great paine. Then ſaid I, for to cure him, we muſt touch other things than the coverlet of the bed. Each one ſaid what hee thought beſt of the Lords greefe, and for concluſion held it altogether deplorable. I told them there was yet ſome hope, becauſe of his youth, and that God and nature doe ſometime ſuch things which ſeeme to Phyſitions and Chirurgions to bee impoſſible. My conſultation was, that all theſe accidents were come by reaſon of the bullet hitting neare the joynt of the knee, which had broken the Ligaments, tendons, and *aponeuroſes* of the muſcles which tye the ſayd joynt together with the *Os femoris*; alſo nerves, veines, and arteries from whence had followed paine, inflammation, apoſteme and ulcer: and that wee muſt begin the cure by the diſeaſe, which was the cauſe of all the ſayd accidents, that is to ſay, to make apertions to give iſſue to the matter reteined in the interſpaces of the muſcles, and in the ſubſtance of them: Likewiſe to the bones which cauſed a great corruption in the whole thigh, from whence the vapors did ariſe and were carryed to the heart, which cauſed the ſincope, and the feaver; and the feaver an univerſall heate through the whole body; and by conſequent, depravation of the whole *Oeconomie*; Likewiſe that the ſaid vapours were communicated to the braine, which cauſed the Epilipſie, and trembling, and to the ſtomacke diſdaine and loathing, and hindred it from doing his functions, which are cheefely to concoct and diſgeſt the meate, and to convert it into *Chylus*; which not being well concocted, they ingender crudities and obſtructions, which makes that the parts are not nouriſhed, and by conſequent the body dryes, and growes leane; and becauſe alſo it did not doe any exerciſe, for every part which hath not his motion remaineth languid, and *atrophiated*, becauſe the heate & ſpirits are not ſent or drawne thither, from whence followes mortification. And to nouriſh and fatten the body, frictions muſt be made univerſally through the whole body, with warme linnen cloathes, above, below, on the right ſide, and left, and round about: to the end to draw the blood and ſpirits from within outward, and to reſolve any fuliginous vapours retained betweene the skinne, and the fleſh; thereby the parts ſhall be nouriſhed and reſtored, (as I have heretofore ſayd in the tenth booke treating of wounds of Gunſhot) and wee muſt then ceaſe when we ſee heate and redneſſe in the skinne, for feare of reſolving that wee have already drawne, and by conſequent make it become more leane. As for the Vlcer which he had upon his rumpe, which came through too long lying upon it without being remooved, which was the cauſe that the ſpirits conld not floriſh or ſhine in it; by the meanes of which there ſhould bee inflammation, apoſteme and then ulcer, yea with loſſe of ſubſtance of the ſubject fleſh, with a very great paine; becauſe of the nerves which are diſſeminated in this part. That wee muſt likewiſe put him into another ſoft bed, and give him a cleane ſhirt, and ſheets; otherwiſe all that wee could doe would ſerve for nothing, becauſe that thoſe excrements and vapors of the matter retained ſo long in his bed, are drawne in by the Syſtole and Diaſtole of the Arteries which are diſſeminated through the skin, and cauſe the ſpirits to change and acquire an ill quality and corruption, which is ſeene in ſome that ſhall lye in a bed where one hath ſweate for the Pox, who will get the Pox by the putrid vapours which ſhall remaine ſoaked in the ſheets and coverlets. Now the cauſe why he could in no wiſe ſleepe, and was as it were in a conſumption, t'was becauſe he eate little, and did not doe any exerciſe, and becauſe hee was grieved with extreame paine. For there is nothing that abateth ſo much the ſtrength as paine. The cauſe why his tongue was dry and fowle, was through the vehemence of the heate of the feaver, by the vapors which aſcended through the whole body to the mouth. For as we ſay in a common proverbe, when an Oven is well heate, the throate feeles it. Having diſcourſed of the cauſes and accidents, I ſayd they muſt be cured by their contraries, and firſt we muſt appeaſe the paine, making apertions in the thigh to evacuate the matter retained, not evacuating all at a time for feare leaſt by a ſodaine great evacuation there might happen a great decay of ſpirits, which might much weaken the patient and ſhorten his dayes. Secondly, to looke unto the great ſwelling and cold in his Legge, fearing leaſt it ſhould fall into a Gangreene; and that actuall heate muſt bee applyed unto him becauſe the potentiall could not reduce the intemperature, *de potentia ad actum*; for this cauſe hot brickes muſt bee applyed round about, on which ſhould bee caſt a decoction of nervall hearbes boyled in wine and Vinegar, then wrapt up in ſome napkin, and to the feete an earthen bottle filled with the ſayd decoction, ſtopt and wrapt up with ſome linnen clothes; alſo that fomentations much be made upon the thigh, and the whole

Legge, of a decoction made of Sage, Roſemary, Time, Lavender, flowers of Camomile, melilot, and red Roſes boyled in white wine, and a *Lixivium* made with oake aſhes with a little Vinegar, and halfe an handfull of ſalt. This decoction hath vertue to attenuate, inciſe, reſolve and drye the groſſe viſcous humor. The ſayd fomentations muſt bee uſed a long while, to the end there may bee a greater reſolution; for being ſo done a long time together, more is reſolved than attracted, becauſe the humor contained in the part is liquified, the skin and the fleſh of the muſcles is rarified. Thirdly, that there muſt be applyed upon the rumpe a great emplaſter made of the red deſiccative and *Vnguentum Comitiſſæ* of each equall parts incorporated together, to the end to appeaſe his paine and dry up the Vlcer, alſo to make him a little downe pillow which might beare his rumpe aloft without leaning upon it. Fourthly to refreſh the heate of his kidneys one ſhould apply the unguent called *Refrigerans Galeni* freſhly made, and upon that the leaves of water Lillies. Then a napkin dipt in *Oxycrate*, wrung out and often renewed: and for the corroboration and ſtrengthning of his heart a refreſhing medicine ſhould bee applyed made with oyle of *nenuphar*, and unguent of Roſes and a little ſaffron diſſolved in Roſe Vinegar, and Treakle ſpread upon a peece of Scarlet: For the *Sincope* which proceded from the debilitation of the naturall ſtrength troubling the braine. Alſo he muſt uſe good nouriſhment full of juice, as rere egges, Damaske prunes ſtewed in wine and ſugar, alſo *Panado* made with the broth of the great pot (of which I have already ſpoken) with the white fleſhy parts of Capons, and Partridge wings minced ſmall, and other roſtmeate eaſie of diſgeſtion, as Veale, Goate, Pigeon, Partridge, and the like. The ſauce ſhould be Orenges, Verjuice, Sorrell, ſharpe Pomegranets; and that he ſhould likewiſe eate of them boyled with good hearbes; as Sorrell, Lettice, Purſlan, Succory, Bogloſſe, Marygolds, and other the like. At night hee might uſe cleanſed barley with juice of *Nenuphar* and Sorrell, of each two ounces, with five or ſix graines of *Opium* and of the foure cold ſeedes bruiſed, of each halfe an ounce, which is a remedy nouriſhing and medicinall, which will provoke him to ſleepe: that his bread ſhould be of Meſlin, neither too new nor too ſtale; and for the great paine of his head, his haire muſt be cut, and rub his head with *Oxirrhodinum* luke warme, and leave a double cloth wet therein upon it; likewiſe ſhould be made for him a frontall of oyle of Roſes, *Nenuphar*, Poppies, and a little *opium* and Roſe Vinegar, and a little Campher and to renew it ſometimes. Moreover one ſhould cauſe him to ſmell to the flowers of Henbane and *Nenuphar* bruiſed with Viniger Roſewater, and a little campher wrapped in a handkercher, which ſhall be often and a long time held to his noſe to the ead that the ſmell may be communicated to the braine, and theſe things to be continned till that the great inflammation and paine be paſt, for feare of cooling the braine too much. Beſides, one may cauſe it to raine artificially in powring downe from ſome high place into a kettle, and that it make ſuch a noyſe that the patient may heare it, by theſe meanes ſleepe ſhall bee provoked on him. And as for the retraction of his Legge that there was hope to redreſſe it, when evacuation was made of the matter and other humors contained in the thigh, which by their extention (made by repletion) have drawne backe the Leg, which might be remedied in rubbing the whole joynt of the knee with *Vnguentum Dialthæa* and oyle of Lillies, and a little *aqua vitæ*, and upon it to be laid, blacke wooll with the greaſe thereof. Likewiſe putting in the hamme a feather-pillow foulded in double, and by little and little to make his Leg to ſtretch out. All which my diſcourſe was well approoved of by the Phyſitions and Chirurgions: the conſultation ended wee went to the ſicke patient, and I made him three apertions in his thigh, from whence iſſued out great quantity of matter and *Sanies*; and at the ſame time I drew out ſome ſcales of bones, nor would I let out too much aboundance of the ſaid matter for feare of too much decaying his ſtrength: Then two or three houres after I cauſed a bed to bee made neare his owne, where there were cleane white ſheets then a ſtrong man lifted him into it, and rejoyced much in that hee was taken out of his foule ſtinking bed. Soone after hee demanded to ſleepe, which hee did almoſt foure houres, where all the people of the houſe began to rejoyce, cheefely Monſieur the Duke of *Aſcot* his brother.

The dayes following I made injections into the bottome and cavities of the Vlcer, made with *Ægyptiacum*, diſſolved ſometimes in *aqua vitæ*, and ſometimes in wine. I applyed to mundifie and dry the ſpongie and looſe fleſh, bolſters, at the bottome of the ſinuoſityes hollow tents of Lead, that the *Sanies* might have paſſage out; and upon it a great Emplaſter of *Diacalcitheos* diſſolved in wine: likewiſe I did rowle it with ſuch dexterity, that he had no paine, which being appeaſed the fever began much to diminiſh. Then I made him drinke wine moderately allayed with water, knowing that it reſtores and quickens the ſpirits: and all the things which we reſted on in the conſultation were accompliſht, according to time, and order; and his paines and fever ceaſed, he began to grow better, and diſcharged two of his Chirurgions, and one of his Phyſitions, ſo that we were but three with him. Now I remained thereabout two monethes, which was not without ſeeing divers ſicke people, as well rich as poore which came to me three or foure leagues about. They gave meate and drinke to the needy, all which he recommended to me, and prayed me alſo for his ſake to helpe them. I proteſt I did not refuſe any one, and did to them what I poſſibly could, whereof he was joyfull. Then when I ſaw he began to mend, I told him hee muſt have a conſort of Violons & a jeſter to make him merry, which he did: in one moneth we ſo wrought, that he could hold himſelfe up in a chaire, and made himſelfe to be carried and walke in his garden, and at the gate of his Caſtle to ſee the people paſſe by. The Countrey people of two or three leagues about, knowing they could ſee him, came the feaſt day male and female, to ſing and dance pell mell, in joy of his amendment, all being very glad to ſee him, which was not done without good laughing and drinking. He caus'd ſtill a barrell of beere to be given them, and they dranke all merrily to his good health. And the Cittizens of *Mont Hainaut* and other gentlemen neighbours came to ſee him in admiration, as a man coming from the tombe. And as ſoone as he began to mend, he was not without company, and as one went out another came in, to viſite him: his table was alwayes well covered. Hee was greatly loved of the Nobility, and of the common people, as well for his liberality as by reaſon of his beauty, and honeſty, having a pleaſant looke and a gracious ſpeech, inſomuch that thoſe that beheld his face were conſtrained to love him. The cheefe of the City of *Monts* came on Saturday to beſeech him to permit mee to goe to *Monts*, where they had a great deſire to feaſt, and make me good cheere for his ſake. He told them he would pray me to goe there, which he did. But I made them anſwere that they ſhould not doe me ſo much honour, as alſo that they could not give me better cheere than I had with him. And he prayed mee againe affectionately to goe thither, and that I ſhould doe that for his ſake, to which I agreed. The day after they fetcht me with two Coaches, and being arrived at *Monts* we found the dinner ready, and the cheefe of the Citty with their wives, ſtayed for mee with a good will. We went to the Table and they placed me at the upper end, and dranke all to me, and to the health of Monſieur *D'auret*, ſaying that he was very happy, and they likewiſe to have obtained me to take him in hand, for that they knew that in this company, he was greatly honoured and loved. After dinner they led mee backe to the Caſtle of *Auret*, where Monſieur the Marqueſſe ſtayd for me with great expectation to recount unto him, what we had done in our banquet, I told him that all the company had dranke divers times to his health: in *6* weekes he began to uphold himſelfe a little with crutches, and to grow very fat and get a lively naturall colour. Now he had a deſire to goe to *Beaumont* which is the dwelling place of Monſieur the Duke of *Aſcot*, and made himſelfe be carried in a great chaire with eight men by turnes, and the Country folkes where we paſſed along, knowing 'twas Monſieur the Marqueſſe fought and ſtrove together who ſhould carry him, and conſtrained us to drinke, but it was but Beere, but I beleeve had it beene Wine or Hippocras they would have given it us with a very good will, ſo much did they ſhew themſelves joyfull to ſee the ſayd Marqueſſe, and prayd all to God for him. Being arrived at *Beaumont* all the people came before us to doe him reverence, and prayed God to bleſſe him, and keepe him in good health. We entred into the Caſtle where there was more than 50 gentlemen which the Duke of *Aſcot* had ſent for to come make good cheere with his brother, who kept his table furniſht three dayes together. After dinner the gentlemen runne at the Ring, playd at Foyles, and rejoyced greatly to ſee Monſieur *Auret*, becauſe they had heard he would never come out of his bed againe, or be cured of his hurt. I was alwayes at the upper end of the table, where every one dranke carouſes to him, & me, thinking to make me foxt, which they could not do: for I drank but according to my old cuſtome. A few dayes after wee returned backe and tooke leave of Madam the Dutcheſſe of *Aſcot*, who tooke a Diamond ring from her finger which ſhe gave me, acknowledging I had very well dreſt her brother; which Diamond was more worth than fifty Crownes. Monſieur *Auret* grew ſtill better and better, and walked all alone round about his garden with crutches. I beg'd leave of him divers times, to come away to *Paris*, declaring that his Phyſition, and Chirurgion, would well doe the reſt that remained, for the cure of his greefe. And now to begin a little to eſtrange my ſelfe from him, I prayd him to give me leave to goe ſee the Citty of *Antwerp*, which he willingly accorded to: and commanded his Steward to conduct me thither accompanied with two Pages: we paſſed through *Malignes* and *Bruxelle*, where the cheefe of the Citty prayed the ſayd Steward, that at our returne they might heare of it; and that they had a great deſire to feaſt me, as they of *Monts* had done. I thank't them moſt kindly, and told them that I was not worthy of ſuch honour; I was two dayes and a halfe to ſee the Citty of *Antwerp*, where ſome Merchants knowing the Steward, prayd him to doe them the honour, that they might beſtow a dinner or ſupper upon us. There was ſtriving who ſhould have us, and were all very joyfull to heare of the good health of the Marqueſſe of *Auret*, doing me more honour than I expected. To conclude, we came backe to the Marqueſſe making good cheere, and within five or ſixe dayes I asked my leave of him, which he granted with great greefe, and gave me an honeſt Preſent, and of great valew, and made me be conducted by the ſayd maſter of his houſe and two Pages, even to my houſe at *Paris*.

I have forgot to tell you, that the *Spaniards* have ſince ruined, and demoliſht his Caſtle of *Auret*, ſack't, pillag'd, rifled and burnt all the houſes, and Villages belonging unto him, becauſe he would not be of their ſide, in the ſlaughters and ruines of the Low Countryes.

The Voyage of Bourges, 1562.

THe King with his Campe remained not long at *Bourges*, but thoſe within yeelded it up, and went out with their jewells ſaved. I know nothing worthy of memory, but that a Boy of the Kings privie kitchin, who being neere the walls of the Citty before the compoſition was made, cryed with a loud voyce, Huguenot, huguenot, ſhoot heere, ſhoote heere, having his armes lifted up, and his hand ſtretched out; a ſouldier ſhot his hand quite through with a bullet: having received his ſtroake, he came and found me out to dreſſe him. My Lord high Conſtable, ſeeing the Boy to have his hand all bloody, and all rent and torne; demanded of him who had hurt him. Then there was a gentleman who ſaw the ſhot made, ſayd it was well beſtow'd becauſe he cried, *Huguenot*, ſhoot here, ſhoot here. Then the ſayd Lord Conſtable ſayd this *Huguenot* was a good musketiere, and bare a pittifull mind, for it was very likely if he would have ſhot at his head, he might have done it more eaſily than in the hand. I dreſſ'd the ſayd Cooke who was very ſicke, but at length was cured, but with lameneſſe of his hand, and ever ſince his companions call him *Huguenot*; he is living.

The battell of Saint Denis, 1567.

ANd as for the battell of Saint *Denis*, there were divers ſlaine aſwell on one ſide as on the other: ours being hurt, went backe to *Paris* to be dreſſed together with the Priſoners who were taken, whereof I dreſſed a great part. The King commanded me by the requeſt of the Lady high Conſtable, to goe to her houſe to dreſſe my Lord, who had received a Piſtoll ſhot in the middle of the ſpondills of his backe; whereby he preſently loſt all ſence and motion of thighes and legges, with retention of excrements, not being able to caſt out his Vrine, nor anything by the fundament, becauſe that the ſpinall marrow, (from whence proceede the ſinewes to give ſenſe and motion to the inferiour parts.) was bruiſed, broken, and torne by the vehemence of the bullet. He likewiſe loſt his reaſon, and underſtanding, and in a few dayes he dyed. The Chirurgions of *Paris* were a long time troubled to dreſſe the ſayd wounded people, I beleeve (my little maſter) that you ſaw ſome of them. I beſeech the great God of Victories, that we may never be imployed in ſuch evill encounters, and diſaſters.

The voyage of Bayonne, 1564.

NOw I ſay moreover, what I did in the voyage with the King to *Bayonne*, where we have beene two yeares and more to compaſſe all this Kingdome, where in divers Citties and Villages I have beene called into conſultations for divers diſeaſes, with the deceaſed Monſieur *Chaplaine* cheefe Phiſition to the King, and Monſieur *Chaſtellan* cheefe to the Queene Mother, a man of great honour and knowledge in Phyſicke and Chirurgery: making this voyage I was alwayes inquiſitive of the Chirurgions if they had marked any rare thing of remarke in their practice, to the end to learne ſome new thing. Being at *Bayonne* there happened two things of remarke for the young Chirurgions. The firſt was, that I dreſt a *Spaniſh* Gentleman, who had a greevous great impoſtume in his throate: he came to have beene touched by the deceaſed King *Charles* for the Evill. I made inciſion in his Apoſteme, where there was found great quantity of creeping wormes as bigge as the point of a ſpindle, having a blacke head; and there was great quantity of rotten fleſh. Moreover there was under his tongue an impoſtume called *Ranula*, which hindred him to utter forth his words, and to eate and ſwallow his meate: he pray'd mee with his held up hands to open it for him if it could be done without perill of his perſon, which I immediatly did, and found under my Lancet a ſolid body, which was five ſtones like thoſe which are drawne from the bladder. The greateſt was as big as an Almond and the other like little long Beanes, which were five in number; in this apoſteme was contained a ſlimy humor of a yellow colour which was more than foure ſpoonefulls; I left him in the hands of a Chirurgion of the Citty to finiſh the cure.

Monſieur *de Fontaine* Knight of the Kings Order, had a great continuall peſtilent Feaver, accompanyed with divers Carboncles in divers parts of his body, who was two dayes without ceaſing to bleed at noſe, nor could it be ſtancht; and by that meanes the feaver ceaſed with a very great ſweat, and ſoone after the Charboncles ripened and were by me dreſſed and by the grace of God cured.

I have publiſht this Apologie to the end that each man may know, with what foot I have alwayes marched, and I thinke there is not any man ſo tickliſh, which taketh not in good part what I have ſaid, ſeeing my diſcourſe is true, and that the effect ſheweth the thing to the eye; reaſon being my warrant againſt all Calumnies.

The end of the Apologie and Voyages.

FINIS.

A GENERALL TABLE OF ALL THE CHIEFE THINGS TREATED of in this Worke.

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